

# JANNEY CAR COUPLING CO.

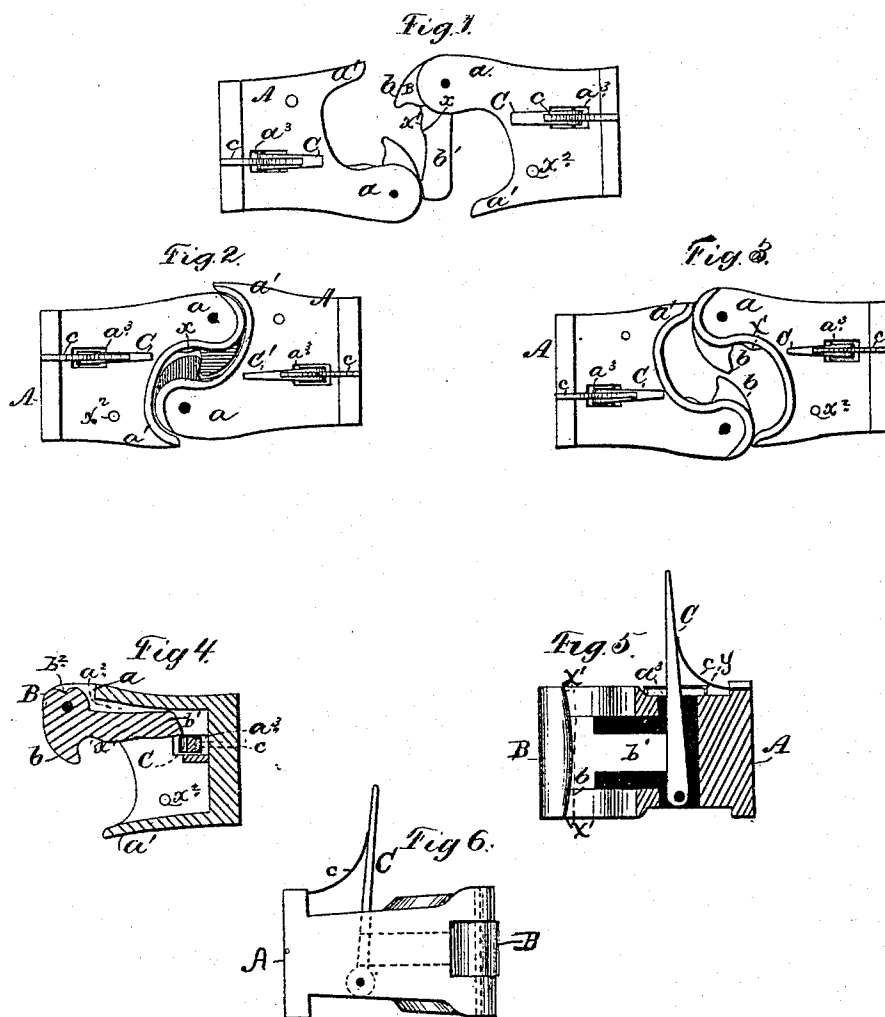


*OF ALEXANDRIA, VIRGINIA.*

E. H. JANNEY.  
Car-Couplings.

No. 138,405.

Patented April 29, 1873.



Witnesses,  
Harri L. Clark,  
H. C. Matthews.

Inventor.  
E. H. Janney  
by Dyer Beadell & Co.  
Attys.

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF ALEXANDRIA, VIRGINIA.

## IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. **138,405**, dated April 29, 1873; application filed April 1, 1873.

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, of Alexandria, in the county of Alexandria and State of Virginia, have invented a new and useful Improvement in Car-Couplings; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention consists mainly in the combination of the hook and catch with a guard-arm, and in certain details of construction, which, in connection with the foregoing, will be fully described hereinafter.

In the drawing; Figure 1 represents a top-plan view of my improved coupling; Figs. 2 and 3, plan views of the parts reversed; Fig. 4, a transverse sectional elevation; Fig. 5, a side elevation, partially in section; and Fig. 6, a side elevation.

To enable others skilled in the art to make and use my invention, I will now proceed to fully describe the construction and manner of operation thereof.

A represents the draw-head, which may be constructed generally of any proper form. It is essentially provided, however, with the extension  $a$  and guard-arm  $a^1$ , and also with recess  $a^2$ , and slot  $a^3$ . B represents a rotary hook, consisting of the head  $b$ , and arm  $b^1$ , the same being united to the extension  $a$  by means of a pivot pin, as shown. C represents a lever resting in the slot  $a^3$ , of the draw-head, and suitably pivoted at its lower end as shown.  $c$  represents a spring, by means of which the lever is pushed forward, when undisturbed, into position to lock the arm of the rotary hook into the recess  $a^2$ .

The operation of my invention is as follows: When it is desired to couple the cars, one of the couplings should have its rotary hook in about the position shown in Fig. 1. Then as the cars come together the arm of the hook will be necessarily struck by the head of the adjacent hook, and be consequently forced back into its recess, the spring-lever yielding sufficiently for this purpose, in which position it will be securely locked by the return of the lever to place by the action of spring  $c$  after the arm has passed it. The cars are then se-

curely coupled, and cannot be disconnected except by pulling back the lever.

The essential parts of my invention are the rotary hook, guard-arm, which serves also as a guiding-arm, and the catch-lever for holding the arm of the hook; but certain other minor details of construction are also deemed of importance.

The arm of the hook is made to project at  $x$  for the purpose of insuring its being forced back into the recess by the entrance of the other hook, even if it does not approach in a straight line. The faces of the hooks where they bear against each other are made curved, as shown on the line  $x^1 x^1$ , Fig. 5, for the purpose of permitting the parts to have the necessary play upon each other as the cars rise and fall unequally, and also to adapt the faces to each other when not in the same vertical planes. The rotary hook is provided with a suitable stop,  $b^2$ , Fig. 4, by means of which its movement when opened is properly limited. A cap, of any suitable construction, is employed to cover the slotted opening in the draw-head, the same being slipped over the lever, as shown at  $y$ , in Fig. 5, by means of which the entrance of snow and ice is effectually prevented. Any form of spring may, of course, be employed in connection with the lever, which latter may be arranged, if desired, to project from the side instead of the top of the draw-head.

The advantages of the described construction are numerous. It will couple readily under all circumstances if one of the hooks is open but will not couple if both are closed. It is adapted for use upon cars of different heights. It has no lateral or longitudinal play, but moves freely vertically. It is impossible for it to become uncoupled unless the cars leave the track. By means of the hole  $a^2$  a link can be used to connect it to the ordinary draw-head. It is uncoupled at any time without the least difficulty by simply pulling back the lever. If desired, a key or wedge may be placed in the slot before or behind the lever to hold it either out of contact with the arm of the hook or to lock the latter in place.

The arm  $a$  is adapted for three different

purposes—that is, first, for guiding the adjacent coupling properly into place as the cars come together; second, for use as a bumper in connection with heads of arm *a* when the cars come together with the heads closed, as shown in Fig. 3; and, third, for preventing the parts from uncoupling upon curves, the arm of one coupling pressing against the draw-head of the other when curving to either right or left, and thus holding the two hooks together.

It will be observed that the line of curvature between the draw-head *a* and guard-arm *a*<sup>1</sup> is precisely the same as that of the hook and end of draw-head, by which means the parts, when they come together, are made to interlock closely so that all lateral and longitudinal play is prevented.

For freight cars the draw-head is prefera-

bly made of cast metal; but for passenger cars I prefer wrought-metal plates bolted together.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent of the United States, is—

1. The combination in a car-coupling, of a rotary hook B, guard-arm *a*<sup>1</sup>, and automatic catch-lever C, substantially as described.

2. In combination with a draw-head having arms *a* *a*<sup>1</sup>, the hook B, all constructed and operated as described.

This specification signed and witnessed.

ELI H. JANNEY.

Witnesses:

R. N. DYER,

H. E. MATTHEWS.

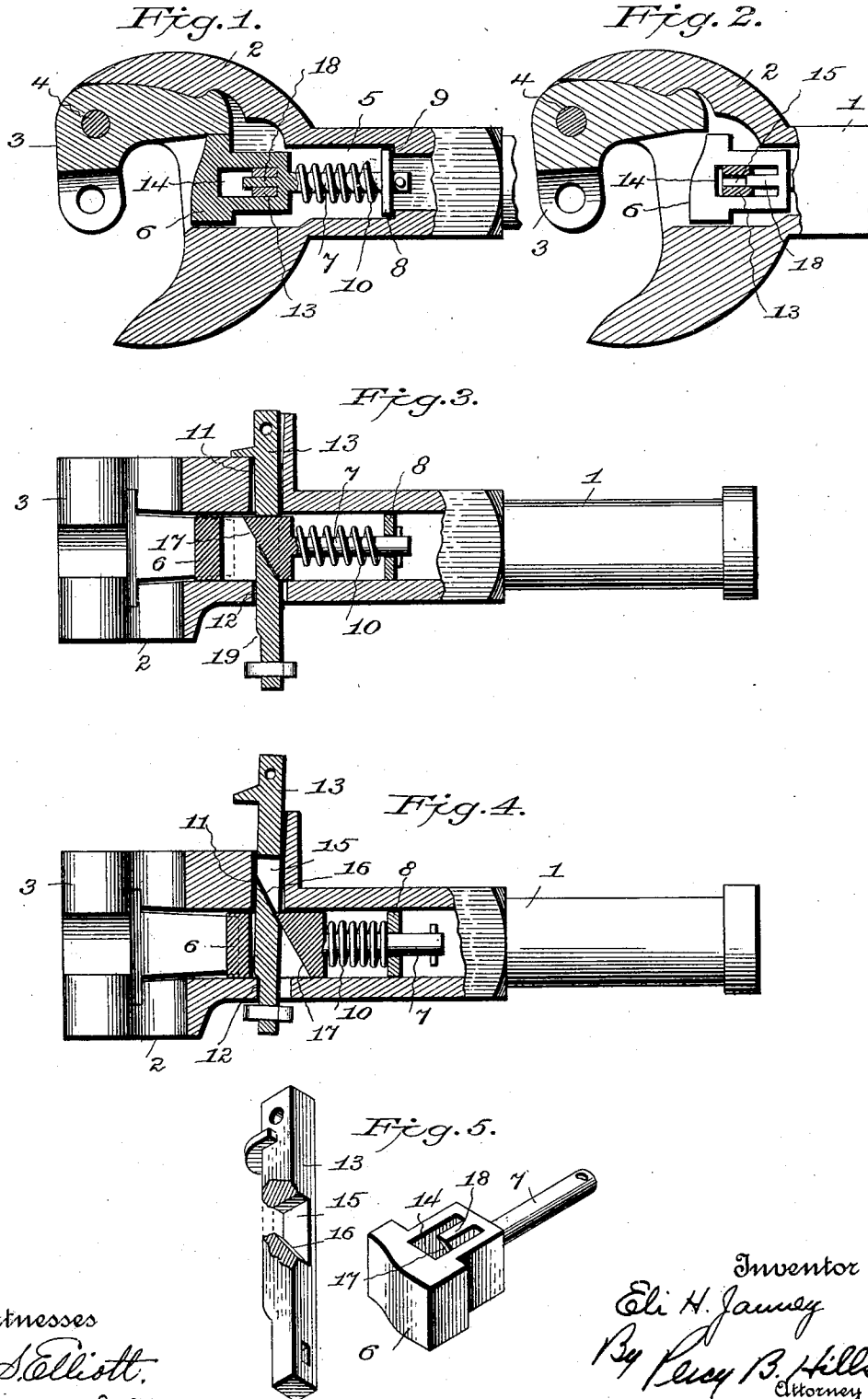
No. 628,329.

Patented July 4, 1899.

E. H. JANNEY.  
CAR COUPLING.

(Application filed Mar. 31, 1899.)

No Model.)



Witnesses  
G. S. Elliott.  
Ernest Jett

Inventor  
Eli H. Janney  
By Percy B. Hills  
Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 628,329, dated July 4, 1899.

Application filed March 31, 1899. Serial No. 711,276. (No model.)

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in the county of Fairfax, in the State of Virginia, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, more particularly to the well-known Janney type, and has for its objects, first, to provide a locking-bar that will always be in position for automatically locking the tail of the coupling-hook when the cars are forced together; secondly, to provide an unlocking-pin that when raised to the unlocking position will be automatically retained therein and which will be automatically released and permitted to resume its normal position by the movement of the coupling-hook to its open position; thirdly, to provide an unlocking-pin of a minimum size that will give a maximum longitudinal movement to the locking-bar in uncoupling, so as to insure the greatest possible amount of bearing-surface on the tail of the coupling-hook when locked, and, fourthly, to provide means whereby the uncoupling-pin when in its normal position will not be moved or disturbed in the act of coupling. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of my improved coupling, showing the same locked. Fig. 2 is a similar view showing the same unlocked. Fig. 3 is a vertical longitudinal sectional view showing the same locked. Fig. 4 is a view similar to Fig. 3, showing the same unlocked. Fig. 5 is a detail perspective view of the locking-bar and unlocking-pin.

Similar numerals of reference indicate corresponding parts in the several views.

In the said drawings the numeral 1 denotes the draw-bar, 2 the draw-head, and 3 the coupling-hook, of a coupling of the Janney type, said coupling-hook being pivoted at 4 to the draw-head 2 in the usual manner.

Longitudinally movable in a central chamber 5 in the draw-head 1 is a locking-bar 6, having a convex front face, as shown, and provided with a stem 7, that passes through a plate 8 in said chamber, the rearward move-

ment of said plate being limited by a shoulder 9, formed in the chamber, as shown. A coiled spring 10, surrounding stem 7 and abutting against the rear side of the locking-bar 6 and the plate 8, exerts a constant forward pressure on said locking-bar.

Vertically movable in upper and lower apertures 11 12 in draw-head 2 is an unlocking-pin 13, the same passing through a vertical slot 14 in locking-bar 6, as shown. Said pin is also slotted at 15, the lower edge 16 of said slot being preferably inclined downward from front to rear and adapted to contact with the similarly-inclined edge 17 of a tongue 18, formed integral with locking-bar 6 and located in the slot 14 therein. The lower front edge of pin 13 is recessed at 19, for a purpose hereinafter to be described.

From the above description the operation of my improved construction will be understood to be as follows: The device is shown in its locked position in Figs. 1 and 3, in which the tail of the coupling-hook 3 is engaged and retained by the side of the locking-bar 6, that is projected forward by spring 10 and limited in said forward movement by the engagement therewith of pin 13. Now when it is desired to unlock coupling-hook 3 the same is accomplished by raising unlocking-pin 13, the result being that by reason of the contact of the inclined face 16 thereof with the inclined edge 17 of tongue 18 in locking-bar 6 the latter is forced back against the tension of spring 10 until the side wall of said locking-bar passes the rear end of the tail of coupling-hook 2 and the latter is free to be swung outward to its open position. This vertical movement of pin 13, however, brings the upper end of recess 19 just above the upper edge of aperture 12 in the draw-head 2, the result being that the tension of spring 10 will force the lower end of pin 13 forward and engage and retain the edge of said recess over the edge of aperture 12, thus retaining said pin in its raised or unlocking position. It will be observed by referring to Figs. 1 and 2 that the front face of the locking-bar 6 is slightly convex, so that the tail of the coupling-hook 2 in its rotation to the open position will contact with said convex surface, thus forcing the locking-bar 6 slightly to the rear and sufficiently to remove the pressure thereof temporarily from

the unlocking-pin 13, thus permitting the latter to drop back automatically to its normal position and permitting the locking-bar to move forward again after the passage of the tail of coupling-hook 2 under the tension of spring 10 to its initial position, this dropping of pin 13 being facilitated by reason of the fact that when said pin is in its raised and retained position the inclined edges 16 and 17 do not pass entirely from contact with each other, as seen in Fig. 4. Furthermore, it will be observed by referring to Fig. 4 that the front face of slot 14 in locking-bar 6 is almost in contact with the pin 13 when the latter is raised, the result being that the slight rearward movement of said locking-bar, caused by the coupling-hook tail, as above described, will cause the locking-bar to contact with the pin 13, thereby positively forcing the upper end of recess 19 therein from engagement with the upper edge of aperture 12. The return of the tail of coupling-hook 2 to its locked position in the act of coupling will automatically force back locking-bar 6 until it is free to spring forward to the locking position as the tail of said hook passes from contact with the front face thereof. It will also be observed that this movement of the locking-bar 6 does not move or affect the unlocking-pin 13, by reason of the fact that inclined edge 17 leaves inclined face 16, and owing to the length of slot 14 the front face thereof does not contact with said pin. Moreover, face 16 and edge 17 are never quite in contact with each other when unlocking-pin 13 is in its normal lowermost position, by reason of the fact that slot 15 therein is long enough to permit said pin to drop to a position where face 16 is slightly below and out of contact with edge 17, thereby saving unnecessary wear on said inclined faces.

It will be observed that the size of apertures 11 and 12 is only coextensive with the size of pin 13 and that said pin is of substantially the same cross area throughout its length, whereas in analogous devices heretofore patented the apertures receiving the unlocking-pins have been required to be large enough to accommodate the inclined surfaces on the pins that impart the necessary longitudinal movement to the locking-bars, I obviating this defect by locating the inclined surface within the body of the pin, as described.

Further, while I have shown and described slot 15 in unlocking-pin 13 as being provided with the inclined face 16 it will readily be understood that said inclined face may be changed to a rounded or even a horizontal face, it being obvious that the inclined edge 17 in the locking-bar 6 is all that is absolutely necessary to accomplish the retraction of said locking-bar.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with a draw-head, a coupling-hook, and a longi-

tudinally-movable locking-bar, of an unlocking-pin adapted in its movement to withdraw said locking-bar to a releasing position with respect to said coupling-hook, to automatically retain said locking-bar in the releasing position, and to automatically return to its initial position as the coupling-hook swings to the open position.

2. In a car-coupling, the combination with a draw-head, a coupling-hook, and a longitudinally-movable locking-bar, of an unlocking-pin adapted in its movement to withdraw said locking-bar to a releasing position with respect to said coupling-hook, to automatically retain said locking-bar in the releasing position, and to be automatically released to return to its initial position by the action of the coupling-hook on the locking-bar as said coupling-hook swings to the open position.

3. In a car-coupling, the combination with a draw-head, a coupling-hook pivoted therein, and a longitudinally-movable locking-bar, of a vertically-movable unlocking-pin engaging with said locking-bar in such manner that its upward movement will withdraw said locking-bar to a releasing position with respect to the coupling-hook but not out of the path of motion of the latter, and a spring exerting a constant tension on said locking-bar toward its locking position and cooperating with said bar to automatically retain the unlocking-pin in its raised position until released by the contact of the coupling-hook with the locking-bar in the movement of the former to its open position.

4. In a car-coupling, the combination with a draw-head, a coupling-hook pivoted therein, a slotted locking-bar longitudinally movable in said draw-head, and a spring exerting a constant tension on said locking-bar toward its locking position, of a vertically-movable slotted unlocking-pin passing through the slot in said locking-bar and adapted to engage with an inclined face in the slot of the locking-bar, said pin being recessed in its front side to engage the draw-head, whereby said pin in its upward movement will withdraw said locking-bar to a releasing position and be automatically pressed by the action of the spring into engagement with the draw-head to retain it in its raised position.

5. In a car-coupling, the combination with a draw-head, a coupling-hook pivoted therein, a slotted locking-bar longitudinally movable in said draw-head and having a convex front face, and a spring exerting a constant tension on said locking-bar toward its locking position, of a vertically-movable slotted unlocking-pin passing through the slot in said locking-bar and adapted to engage with an inclined face in the slot of the locking-bar, said pin being recessed in its front side to engage the draw-head, whereby said pin in its upward movement will withdraw said locking-bar to a releasing position but not out of the path of motion of the coupling-hook and will be automatically pressed by the action of the

spring and locking-bar into engagement with the draw-head to retain the parts in the releasing position until the coupling-hook by its contact with the convex face of the locking-bar during its movement to the open position retracts said locking-bar, releasing said pin and permitting it to drop to its normal position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

A. B. JANNEY,  
C. H. JANNEY.



No. 628,330.

Patented July 4. 1899.

E. H. JANNEY.  
CAR COUPLING.

(Application filed Mar. 31, 1899.)

(No Model.)

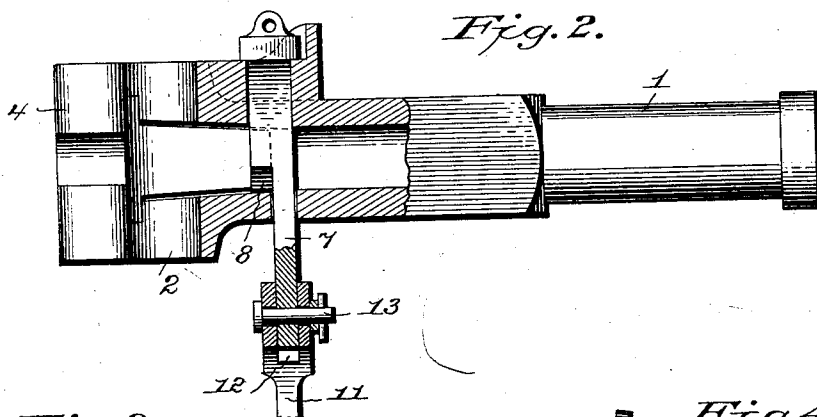
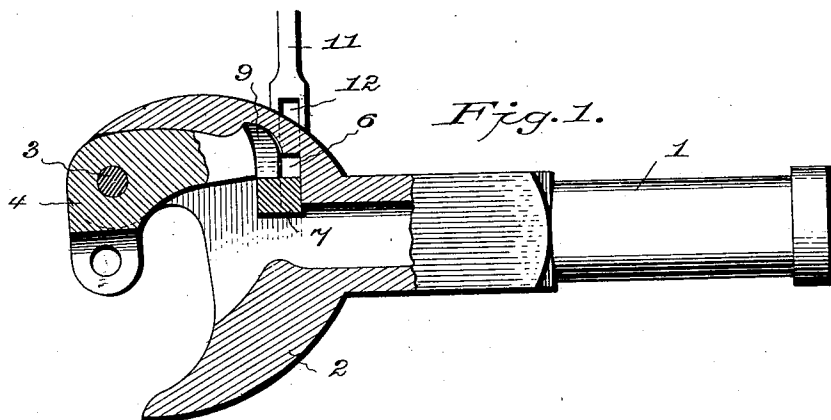


Fig. 3.

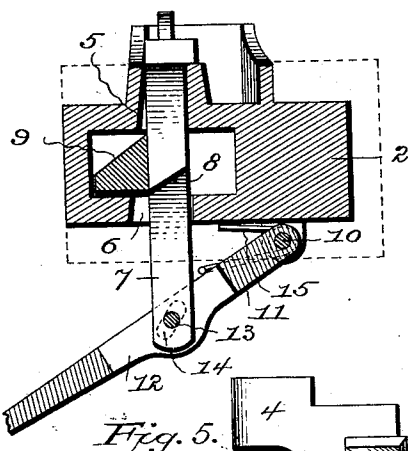


Fig. 4.

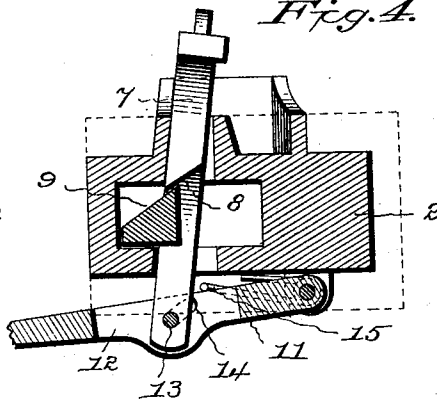


Fig. 5.

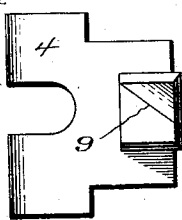
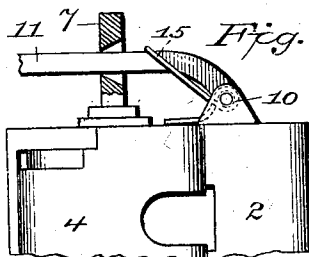


Fig. 6.



Witnesses  
G. S. Elliott.  
Emery Jett

Inventor  
Eli H. Janney  
By Lewis B. Hills  
Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 628,330, dated July 4, 1899.

Application filed March 31, 1899. Serial No. 711,277. (No model.)

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in the county of Fairfax and State of Virginia, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly to that class known as the "Janney" type, special reference being had to that form of locking device shown in my Patent No. 254,093, dated February 21, 1882, where two incline planes or cams contact to raise the pin in automatic coupling.

The object of my present invention is to provide means for shifting these inclines or cams so as to make them perform two additional and important functions—first, that of automatically throwing open the hook when it is desired to effect a coupling, and, secondly, that of automatically holding the locking-pin in an unlocked position when it is desired to uncouple two cars until said cars separate, when the locking-pin will return automatically to the position for coupling. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of my improved coupling, showing the same in its locked position. Fig. 2 is a vertical longitudinal sectional view, the coupling-hook and locking-pin being shown in full lines. Fig. 3 is a vertical transverse sectional view taken through the tail of the coupling-hook and also showing the operating-lever in section, the device being shown locked. Fig. 4 is a view similar to Fig. 3, showing the locking-pin raised and in position to automatically throw open the coupling-hook. Fig. 5 is a detail side elevation of the coupling-hook.

Similar numerals of reference denote corresponding parts in the several views.

In the drawings the numeral 1 denotes the draw-bar of the coupling carrying the draw-head 2 of the well-known Janney type, in which is pivoted, by means of pin 3, the usual coupling-hook 4.

Passing vertically through upper and lower apertures 5 and 6 in the draw-head 2 is the coupling-pin 7, the same being cut away on

its front lower side and formed with an inclined or cam surface 8, as shown. The tail of the coupling-hook 4 is provided on its outer side with a similarly-inclined cam-surface 9, adapted to move in the path of the cam-surface 8, as shown.

On the under side of the draw-head 2 is pivoted at 10 an operating-lever 11, apertured at 12 for the reception of the lower end of the coupling-pin 7, with which it is engaged, preferably, by means of a pin or roller 13, that moves in slots 14, formed in the sides of the lever 11, said slots being inclined downwardly from right to left for a purpose hereinafter to be described. A spring 15, passing across the upper side of lever 11, thence around its pivotal point 10, and at its free ends engaging against the under side of the draw-head 2, serves to exert a constant downward pressure on said lever.

From the above description the operation of my improved construction will be understood to be as follows: When the parts are in their locked position, as shown in Figs. 1, 2, and 3, the tail of the coupling-hook 2 will engage against the front half of the coupling-pin 6—that is to say, against that portion of said hook opposite to the cam-surface 8 thereof—and said hook will be firmly retained in its locked position. Now when it is desired to release said hook the free end of lever 11 is raised until the lower edge of cam-surface 8 on pin 7 passes the upper edge of the tail of the locking-hook 2, when the latter will be free to move to its open position. It will be observed, however, that said coupling-pin is moved vertically by its contact with the right sides of slots 5 and 6 and with the tail of the coupling-hook in this movement to the releasing position, the result being that as lever 11 necessarily moves in the arc of a circle struck from its pivot-point 10 the pin or roller 13, connecting said coupling-pin and lever, will necessarily move toward the upper end of inclined slots 14 in said lever, and while the incline of said slots will be lessened somewhat as lever 11 approaches a horizontal position they will still remain somewhat inclined downwardly from right to left when the coupling-pin reaches the releasing position, as shown in Fig. 4. It will also be observed by referring to Figs. 3 and 4 that the left sides of

slots 5 and 6 diverge downwardly from a vertical line, leaving a small free space at the lower end of slot 5 and a much wider space in slot 6. Now as the lower edge of cam-surface 8 passes the tail of the coupling-hook 2 in the act of unlocking said coupling-hook the contact between the two ceases and said coupling-pin is free to move at its lower end to the left into the space formed by the diverging sides of slots 5 and 6, above described, the result being that the dead-weight of said coupling-pin will cause pin or roller 13 to slide down the lower inclined sides of slots 14 in the lever 11, thus inclining said coupling-pin somewhat to the left from top to bottom and causing the lower edge of cam-surface 8 thereon to engage with cam-surface 9, formed on the tail of the coupling-hook 2, as clearly shown in Fig. 4, the parts remaining in this position until the cars are drawn apart, at which time the opening of the coupling-hook 2 will permit cam-surface 8 to slide down cam-surface 9 and permit the operating-lever and coupling-pin to resume their normal positions. The device is now ready for automatic coupling, as the return of the tail of coupling-hook 2 to its locked position will cause the cam-surfaces 8 and 9 to again contact, thus lifting coupling-pin 7 and permitting the tail of the coupling-hook 2 to pass beneath cam-surface 8, it being observed that as the lifting strain is from coupling-pin 7 to lever 11 instead of vice versa, as hereinbefore described, the upper surfaces of inclined slots 14 will bear against pin or roller 13, and thus force coupling-pin 7 automatically to the right until it contacts with the walls of slots 5 and 6 on that side, thereby permitting the tail of the coupling-hook 2 to pass from beneath cam-surface 8 and permitting the coupling-pin to drop to its normal locked position. (Shown in Fig. 3.)

A very important feature of the invention resides in the operation of cam-surfaces 8 and 9 when the car is not coupled to another and the coupling-hook is locked, which is that when it is desired to prepare the device for coupling it is only necessary to raise the coupling-pin 7 to the unlocking position, hereinbefore described, whereupon the combined dead-weight of said lever and coupling-pin, together with the downward tension exerted thereon by spring 15, will through the contact of cam-surfaces 8 and 9 cause the coupling-hook 2 to be automatically opened ready for coupling, thus obviating the necessity for manually opening the coupling-hook.

I have illustrated in Fig. 6 a slightly-modified construction wherein the operating-lever 11 is located on top of the draw-head 1 and which dispenses with the necessity for the pin or roller 13, the inclined upper side of aperture 12 operating to tilt the lower end of coupling-pin 7 to the left when cam-surface 8 passes the tail of coupling-hook 2, as will be readily understood. The inclined lower side of aperture 12 will also have the same effect in returning the coupling-pin to its vertical posi-

tion during automatic coupling as do the lower sides of slots 14, due to the dead-weight of the operating-lever 11 and the downward tension of spring 15.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted therein, of a vertically-movable coupling-pin adapted to engage against the tail of the coupling-hook when the latter is in its closed position, and means carried by said coupling-pin for automatically forcing said coupling-hook to its open position when said pin is raised to the releasing position.

2. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted therein, of a vertically-movable coupling-pin adapted to engage against the tail of the coupling-hook when the latter is in its closed position, and means carried by said coupling-pin and operating by the downward movement thereof for automatically forcing said coupling-hook to its open position when said pin is raised to the releasing position.

3. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted therein, of a vertically-movable coupling-pin adapted to engage against the tail of the coupling-hook when the latter is in its closed position and provided with a cam-surface adapted to engage a similar surface on the coupling-hook tail when said pin is raised to the unlocking position, whereby said coupling-hook will be automatically forced to its open position.

4. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted therein, of a vertically-movable coupling-pin adapted to engage against the tail of the coupling-hook when the latter is in its closed position and provided with a cam-surface adapted to engage a similar surface on the coupling-hook tail when said pin is raised to the unlocking position, whereby said coupling-hook will be automatically forced to its open position, an operating-lever for said coupling-hook, and a spring for exerting a constant downward tension on said coupling-pin.

5. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted therein and provided with a cam-surface on the outer side of the tail thereof, of a vertically-movable coupling-pin, a portion of which lies in the path of movement of said coupling-hook tail and having a cam-surface on the under side of said portion, and a lever for raising said pin, said pin and lever having an inclined slot connection, whereby the lower end of said pin in its upward movement will have a pressure exerted thereon in a direction toward said coupling-hook tail, and in its downward movement a pressure away from said coupling-hook tail.

6. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted

therein and provided with a cam-surface on the outer side of the tail thereof, of a coupling-pin vertically movable in an aperture in the draw-head that is enlarged toward its lower end to permit a sidewise movement to the lower end of said pin, said pin having a portion thereof lying in the path of movement of said coupling-hook tail and having a cam-surface on the under side of said portion, and a lever for raising said pin, said pin and lever having an inclined slot connection, whereby the lower end of said pin in its upward movement will have a pressure exerted thereon in a direction toward said coupling-hook tail, and in its downward movement a pressure away from said coupling-hook tail.

7. In a car-coupling, the combination with the draw-head, and coupling-hook pivoted therein and provided with a cam-surface on

the outer side of the tail thereof, of a vertically-movable coupling-pin having a portion thereof lying in the path of movement of said coupling-hook tail and having a cam-surface on the under side of said portion, a pivoted lever for raising said pin, said pin and lever having an inclined slot connection, and a spring exerting a downward tension on said lever and having its free ends contacting with the draw-head, passing thence around the lever-pivot, and at its middle bearing against said lever.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

A. B. JANNEY,  
C. H. JANNEY.

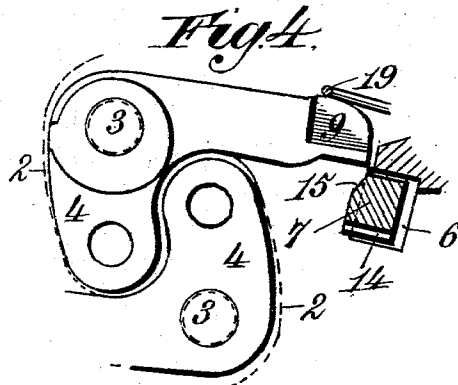
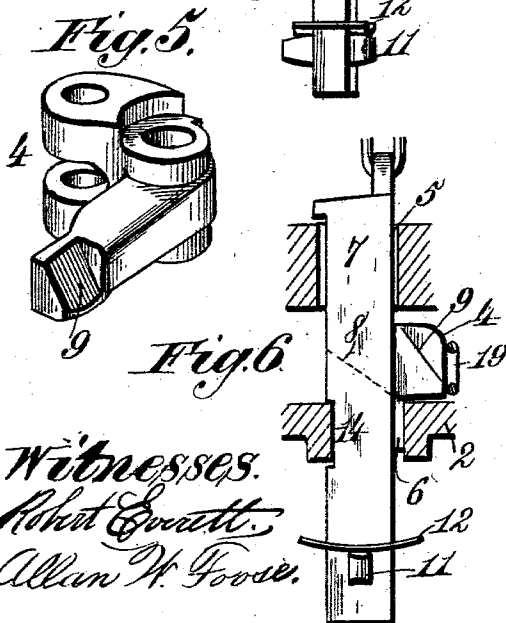
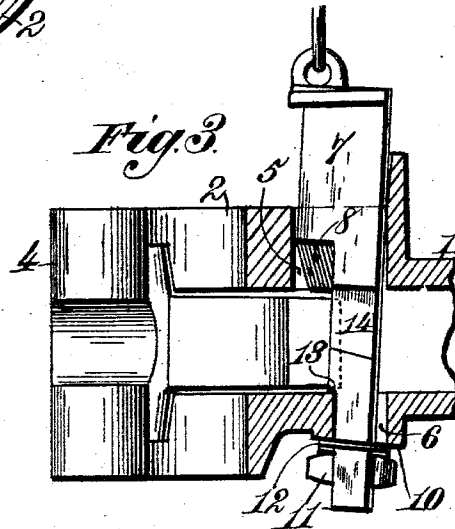
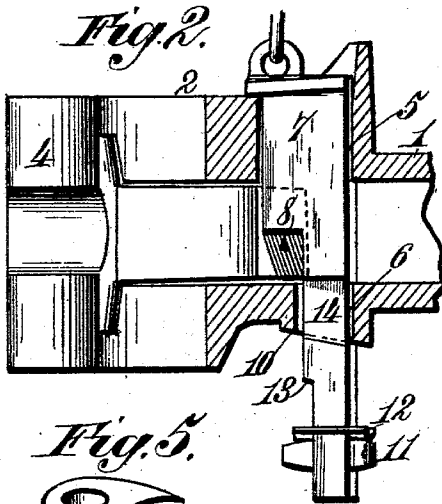
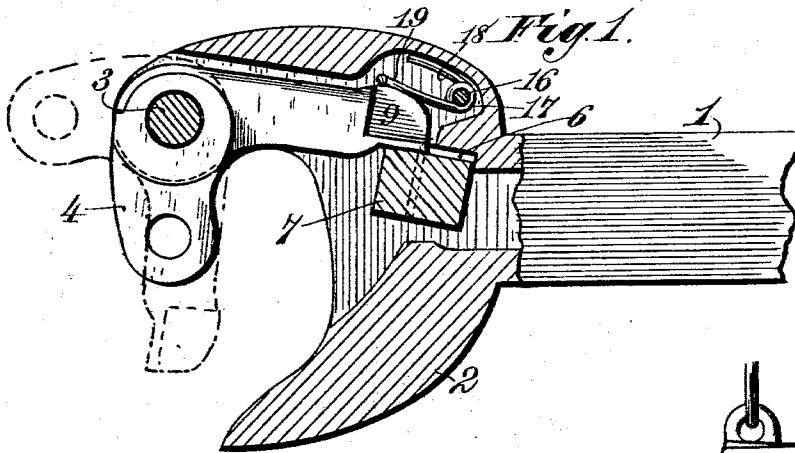
No. 717,686.

PATENTED JAN. 6, 1903.

E. H. JANNEY.  
CAR COUPLING.

APPLICATION FILED MAY 2, 1901.

NO MODEL.



Witnesses.  
Robert Smith.  
Allan H. Foster.

Inventor.  
Eli H. Janney  
By Percy B. Hille  
att'y.

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 717,686, dated January 6, 1903.

Application filed May 2, 1901. Serial No. 58,405. (No model.)

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in the county of Fairfax, State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly to that class known as the "Janney" type, wherein the tail of the coupling-hook is provided with an inclined plane that contacts with a similar inclined plane on the locking-pin, and has for its objects, first, to provide novel means for automatically retaining the locking-pin in its raised position until the tail of the coupling-hook has passed the same on its way to the open or unlocked position, said movement of the tail automatically releasing said locking-pin to permit it to drop again to the coupling position; secondly, to provide novel means for automatically retaining said locking-pin against upward movement while the coupling-hook is closed and the draft strain is exerted thereon, and, thirdly, to provide a novel spring mechanism for throwing said coupling-hook open when released by the locking-pin. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of my improved coupling, showing the same in its locked position. Fig. 2 is a vertical longitudinal sectional view, the coupling-hook and locking-pin being shown in full lines. Fig. 3 is a similar view, the locking-pin being shown raised and retained in the unlocked position. Fig. 4 is a detail view of two coupling-hooks, showing the tail of one of them in the act of moving to the open position and automatically releasing the locking-pin to permit it to drop to its lowermost position. Fig. 5 is a detail perspective view of the coupling-hook. Fig. 6 is a detail vertical transverse sectional view of the draw-head, showing the locking-pin retained against upward movement.

Similar numerals of reference denote corresponding parts in the several views.

In the drawings the numeral 1 denotes the draw-bar of the coupling, carrying the draw-

head 2 of the well-known Janney type, in which is pivoted, by means of pin 3, the usual coupling-hook 4. Passing vertically through upper and lower apertures 5 and 6 in the draw-head 2 is the locking-pin 7, the same being cut away on its front lower side and formed with an inclined or cam surface 8, as shown. The tail of the coupling-hook 4 is provided on its outer side with a similarly-inclined cam-surface 9, adapted to move in the path of the cam-surface 8, as shown. The under side of the draw-head 2 around the aperture 6 therein is formed into an inclined or cam surface 10, while the lower end of the locking-pin 7 has the usual cotter 11 therein, on which loosely rests a small spring-plate 12. The locking-pin 7 is also recessed on its front side from its lower end upward, said recess terminating in a shoulder 13, while on its side opposite to the tail of the coupling-hook 4 is a recess 14, slightly longer than the width of the draw-head 2 at that point, as shown in Fig. 6. Said locking-pin also has its edge or corner nearest the tail of the coupling-hook 4 beveled at 15.

Mounted on a vertical pin 16 and lying in a recess in the draw-head 1 is a spring of the type known as the "rat-trap" spring, said pin passing through the coil 17 of the same, its free ends 18 bearing against the wall of the draw-head, while a looped free end 19 bears against the tail of the coupling-hook 4 when in its closed position. It will be observed by referring to Fig. 1 of the drawings that one face of the recess containing said spring acts as a stop for the looped free end of said spring when not compressed by the coupling-hook tail, thus maintaining the same in position to properly engage said coupling-hook tail, as well as preventing its projecting in the path of downward movement of the locking-pin 7.

From the above description the operation of my improved construction will be understood to be as follows: When the parts are in their locked position, as shown in Figs. 1 and 2, the tail of the coupling-hook 2 will engage against the front half of the locking-pin 7—that is to say, against that portion of said pin opposite to the cam-surface 8 thereof—and said hook will be firmly retained in its locked

position. Now when it is desired to release said hook the engine of the train is backed slightly to force the tail of the coupling-hook 4 away from its locking-pin 7, when the latter 5 may be freely drawn upward until the lower edge of cam-surface 8 thereon passes the upper edge of the tail of the coupling-hook 4, when the latter will be free to move to its open position as the cars are drawn apart, 10 said movement being automatically accomplished, moreover, through the tension of the looped end 19 against the rear of the tail of the coupling-hook when the car is not coupled to another car. It will be observed, however, that as said locking-pin 7 is raised to 15 its unlocking position the spring-plate 12 thereon will contact with the cam-surface 10 on the under side of the draw-head 2, thus automatically throwing the lower end of the 20 locking-pin 7 forward, so that the shoulder 13 thereon will engage over the edge of the draw-head 2, as shown in Fig. 3, thus retaining said locking-pin 7 in its raised or unlocking position. This forward movement of the 25 locking-pin 7, however, brings it into the path of movement of the tail of the coupling-hook 4, as shown in Fig. 4, and the latter in its movement to the open position will contact with the beveled edge 15 thereof and 30 automatically force said locking-pin 7 backward again, so that the shoulder 13 will be released from its engagement with the draw-head and the locking-pin will again drop to its locking position. As seen in Fig. 6, when 35 the parts are in their locked position the pressure of the tail of the coupling-hook against one side of the locking-pin 7 will force the latter in the opposite direction, so that the recess 14 therein will engage with 40 the edge of aperture 6 in the draw-head 2, and thus effectually prevent any upward movement of said locking-pin 7. It will be observed that the recess 14 is so located as to engage the lower part of the draw-head, which 45 permits an accurate fit of the wider portion of the locking-pin 7 in the upper part of the draw-head, on which is exerted the main draft strain, said strain being a torsional one, due to the engagement of the coupling-hook 50 tail against a portion only of said locking-pin, as shown in Fig. 1.

While I prefer to employ the spring-plate 12 on top of the cotter 11 to contact with the cam-surface 10 on the under side of the draw-head 2 to force the lower end of the locking-pin 7 forward, the use of the same is not essential, as the cotter 11 alone by contacting with said cam-surface will perform the same function.

60 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with the draw-head having a cam-surface on its 65 under side, and the coupling-hook pivoted in said draw-head, of a vertically-movable locking-pin for said coupling-hook adapted in its

movement to the unlocking position to contact with said cam-surface and be forced forward to engage the draw-head and be retained 70 in its unlocking position.

2. In a car-coupling, the combination with the draw-head having a cam-surface on its under side, and the coupling-hook pivoted in said draw-head, of a vertically-movable locking-pin for said coupling-hook having a shoulder 75 on its front side and adapted in its movement to the unlocking position to contact with said cam-surface and be forced forward to engage said shoulder thereon with the 80 draw-head and retain it in its unlocking position.

3. In a car-coupling, the combination with the draw-head having a cam-surface on its under side, and the coupling-hook pivoted in said draw-head, of a vertically-movable locking-pin for said coupling-hook having a shoulder 85 on its front side, and a spring-plate carried by said locking-pin and adapted to contact with said cam-surface during the upward 90 movement of said locking-pin to force the latter forward to engage said shoulder thereon with the draw-head and retain said locking-pin in its unlocking position.

4. In a car-coupling, the combination with 95 the draw-head having a cam-surface on its under side, and the coupling-hook pivoted in said draw-head, of a vertically-movable locking-pin for said coupling-hook, adapted in its movement to the unlocking position to contact 100 with said cam-surface and be forced forward to engage the draw-head and be retained in its unlocking position, said locking-pin, when in its unlocking position, lying in the path of movement of the tail of the coupling-hook and adapted to be tripped thereby to resume its locking position as said tail moves 105 to the open position.

5. In a car-coupling, the combination with the draw-head, and the coupling-hook pivoted 110 therein, of a vertically-movable locking-pin having a recess in its side opposite the tail of the coupling-hook adapted to be engaged with the lower part of the draw-head by the pressure of said coupling-hook tail to prevent vertical movement of said locking-pin. 115

6. In a car-coupling, the combination with the draw-head, the coupling-hook pivoted therein, and the locking-pin, of a spring 120 mounted in a recess in said draw-head and adapted to contact with and be placed under tension by the tail of the coupling-hook when in its locked position, one face of said recess limiting the movement of said spring when not in contact with said coupling-hook tail. 125

7. In a car-coupling, the combination with the draw-head, the coupling-hook pivoted therein, and the locking-pin, of a pin in the draw-head, and a spring mounted on said pin, said spring lying in a recess in the draw-head 130 and adapted to contact with and be placed under tension by the tail of the coupling-hook when in its locked position, one face of said recess limiting the movement of said spring

when not in contact with said coupling-hook tail.

8. In a car-coupling, the combination with  
5 the draw-head, the coupling-hook pivoted  
therein, and the locking-pin, of a pin in the  
draw-head, and a spring mounted on said pin,  
said spring lying in a recess in the draw-head  
and having its free ends contacting with the  
10 draw-head and a looped free portion contact-  
ing with the rear of the tail of the coupling-  
hook when in its locked position, one face of

said recess limiting the movement of said  
looped free portion when not in contact with  
said coupling-hook tail.

In testimony whereof I have hereunto set 15  
my hand in the presence of two subscribing  
witnesses.

ELI H. JANNEY.

Witnesses:

M. J. HAMILTON,  
E. W. HAMILTON.



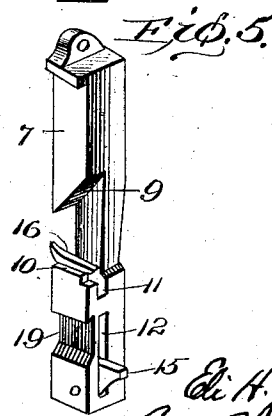
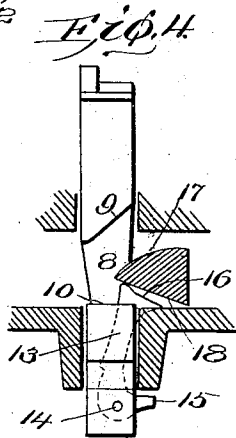
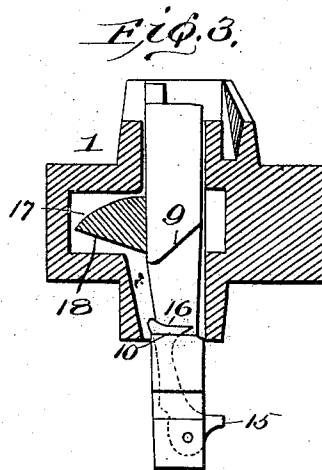
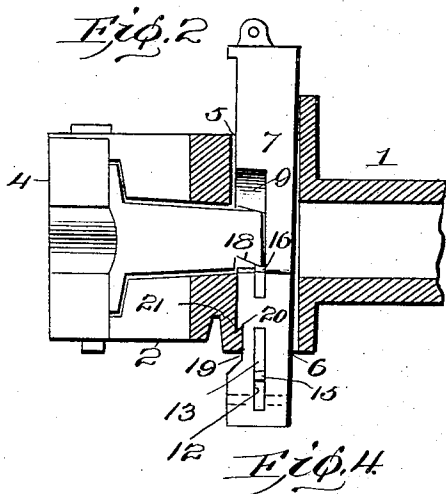
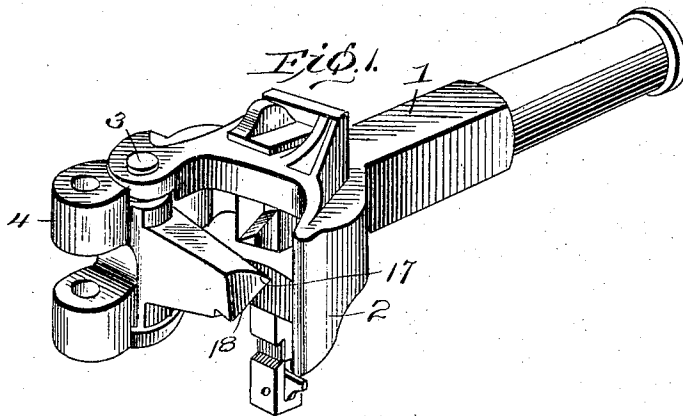
No. 766,042.

PATENTED JULY 26, 1904.

E. H. JANNEY.  
CAR COUPLING.

APPLICATION FILED JULY 29, 1903.

NO MODEL.



Witnesses  
*J. M. Fowler Jr.*  
*G. A. Tolson.*

Inventor  
*E. H. Janney*  
By *Ray B. Hills*  
Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 766,042, dated July 26, 1904.

Application filed July 29, 1903. Serial No. 167,474. (No model.)

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in the county of Fairfax and State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly of that class known as the "Janney" type, and has for its object to provide improved means for automatically rotating the coupling-hook to its open position by means of a vertically-moving locking-pin. This object I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved coupling, showing the same in its open position. Fig. 2 is a vertical longitudinal sectional view, the coupling-hook and locking-pin being shown in full lines. Fig. 3 is a vertical transverse sectional view showing the locking-pin in its locking position. Fig. 4 is a similar detail sectional view showing the locking-pin partially lifted and in the act of forcing the coupling-hook to the open position. Fig. 5 is a detail perspective of the locking-pin.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference-numeral 1 denotes the draw-bar of the coupling, carrying the draw-head 2 of the well-known Janney type, in which is pivoted, by means of pin 3, the usual coupling-hook 4. Passing vertically through the upper and lower apertures 5 and 6 in the draw-head 2 is the locking-pin 7, the same being recessed on its front side at 8 and having the upper face of said recess formed into an inclined or cam surface 9. The lower face 10 of said recess 8 is flat, and the body of the pin below this face is provided with a deep vertical recess or slot 11, terminating at its upper end in said face 10 and extending through one side of the pin at 12, as shown in Figs. 2 and 5. Mounted in said slot 11 is a trigger 13, the same being pivoted in said pin at 14 and having a horizontal arm 15 projecting through the aperture 12 in the side of the pin. The upper

broadened end 16 of this trigger extends through and somewhat above the lower face 10 of the recess 8, all for a purpose hereinafter to be described.

The tail of the coupling-hook 4 is reversely inclined on its upper and lower surfaces at 17 and 18, and the lower incline 18 is also inclined upwardly and forwardly, as shown in Fig. 2, also for a purpose hereinafter to be described.

Below the recess 8 in the pin 7 is another recess 19, having its upper edge 20 preferably inclined upwardly and inwardly to engage a shoulder 21, formed on the inner front face of the lower aperture 6 in the draw-head when said pin is raised to the unlocking position, the latter having its upper edge preferably beveled to correspond with that of the upper edge 20 of recess 19, as shown in Fig. 2.

From the above description the operation of my improved construction will be understood to be as follows: With the pin 7 in its lowermost position and the coupling-hook 4 open, as shown in Fig. 1, the device is ready for automatic coupling, the rotation of said hook causing cam-surface 17 on the tail thereof to contact with cam 9 on the pin 7, and thus raise the latter until the coupling-hook tail passes the same, when it will drop automatically, and thus lock the hook in its closed position. Now when the coupling-hook is thus locked and it is desired to open the same for coupling the pin 7 is lifted by means of its cord or chain until the lower edge of cam-surface 9 passes above the tail of the hook, thus releasing the latter. A slight further upward movement of said pin will now cause the left side of the upper broadened end 16 of trigger 13 to engage under cam-surface 18 on the coupling-hook tail, it being observed, first, that the position of the pivot 14 thereof to the right of the center of said trigger causes the latter to automatically maintain the position shown in Fig. 3 and, secondly, that while in this position the left side of the upper broadened end 16 thereof projects somewhat beyond that side of the pin 7, so as to engage with said cam-surface 18 on the coupling-hook tail. A still further upward

movement of pin 7 will now cause the horizontal projecting arm 15 of trigger 13 to contact with the under side of the draw-head 2, thus tripping said trigger to the right and automatically rotating the coupling-hook 4 to its open position, as clearly seen in Fig. 4.

In order to automatically set the pin 7 in the unlocked position when the coupling is coupled and it is desired to uncouple the same, it is only necessary to lift said pin, when by the engagement of the upper end 16 of trigger 13 with the incline 18 the lower end of said pin will be forced forward sufficiently to cause the upper edge 20 of recess 19 therein to engage shoulder 21, and thus retain said pin in the unlocked position, this movement to the pin being imparted thereto by reason of the fact that said incline 18 is also inclined forward and upward.

In an application for Letters Patent filed by me May 5, 1903, Serial No. 155,765, are specifically described certain other features disclosed in the drawings forming part of this application; but as the same form no part of the present application a detailed description is deemed unnecessary.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, a vertically-movable locking-pin for said coupling-hook, and a trigger pivoted in said locking-pin and adapted, when said locking-pin is raised, to engage said incline on the coupling-hook and force said coupling-hook to the open position.

2. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, a vertically-movable locking-pin for said coupling-hook, a trigger pivoted in said locking-pin and adapted, when said locking-pin is raised, to engage said incline on the coupling-hook, and a horizontal projecting arm on said trigger adapted during the further raising of said locking-pin to engage the draw-head and thus trip said trigger to force said coupling-hook to the open position.

3. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail that also inclines forward and upward, a vertically-movable locking-pin for said coupling-hook, a trigger pivoted in said locking-pin and adapted, when said locking-pin is raised, to engage said incline on the coupling-hook, and coacting shoulders on said locking-pin and draw-head adapted when engaged to retain said locking-pin in the unlocking position, the engagement of said trigger with the forward and upward incline on said coupling-hook tail when said coupling-hook is engaged with another coupling-hook forcing said locking-pin forward to engage said shoulders and thus set said locking-pin in the unlocking position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

THOMAS DURANT,  
J. M. FOWLER, Jr.

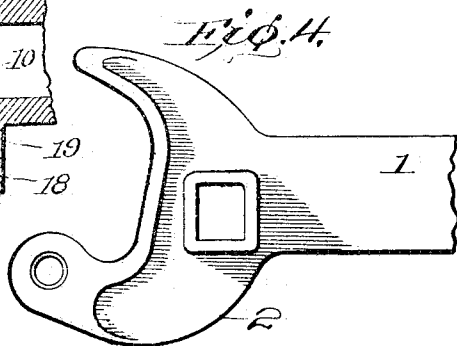
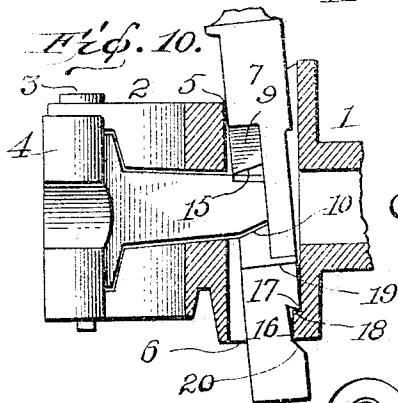
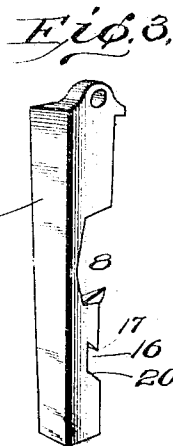
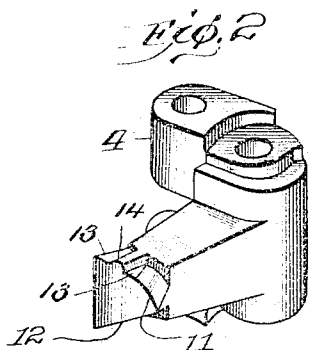
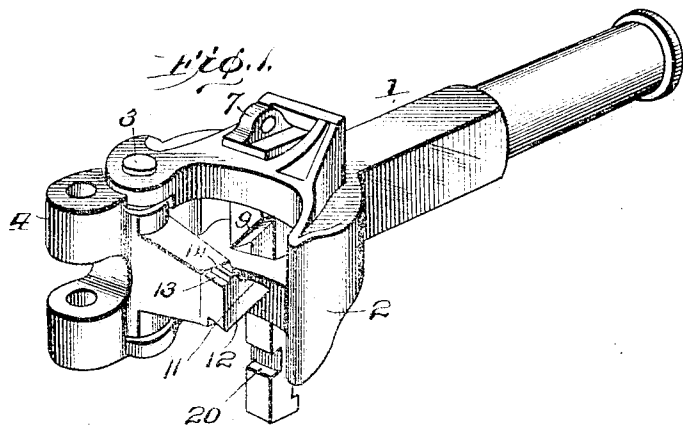
No. 781,949.

PATENTED FEB. 7, 1905.

E. H. JANNEY.  
CAR COUPLING.

APPLICATION FILED MAY 5, 1903.

2 SHEETS—SHEET 1.



Witnesses:

J. M. Fowler Jr.  
W. C. Sedgwick.

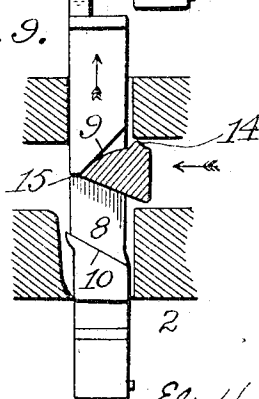
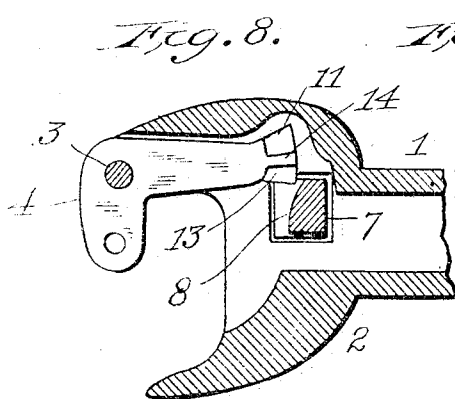
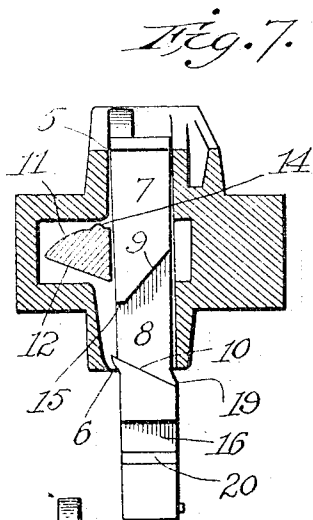
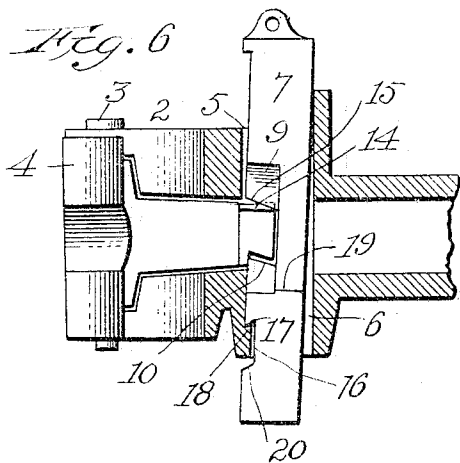
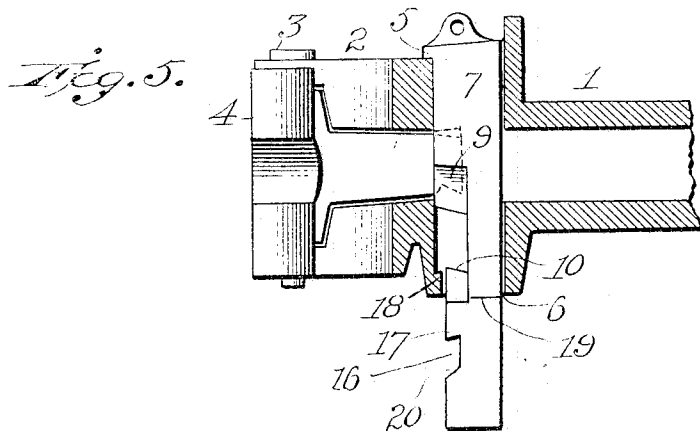
Inventor.

Eli H. Janney  
By Percy B. Hille  
Att'y.

E. H. JANNEY.  
CAR COUPLING.

APPLICATION FILED MAY 5, 1903.

2 SHEETS—SHEET 2.



Witnesses

Edwin L. Yewell  
for Burgess & Co.

Inventor

Eli H. Janney  
by Percy B. Kelle

Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 781,949, dated February 7, 1905.

Application filed May 5, 1903. Serial No. 155,765.

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in Fairfax county, State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly to that class known as the "Janney" type, and has for its objects, first, to provide improved means for automatically rotating the coupling-hook to its open position by means of a vertically-movable locking-pin, and, secondly, to provide improved means for setting the locking-pin in the unlocking position and for automatically disengaging it from said set position by the movement of the tail of the coupling-hook. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of my improved coupling, showing the same in its open position. Fig. 2 is a detail perspective view of the coupling-hook detached. Fig. 3 is a detail perspective view of the locking-pin. Fig. 4 is a bottom plan view of the coupling. Fig. 5 is a vertical longitudinal sectional view, the coupling-hook and locking-pin being shown in full lines. Fig. 6 is a similar view, the locking-pin being shown raised and retained in the unlocked position. Fig. 7 is a vertical transverse sectional view taken immediately in front of the locking-pin. Fig. 8 is a horizontal sectional view showing the coupling in the lock-set position. Fig. 9 is a detail sectional view similar to Fig. 7, showing the tail of the coupling in the act of moving to the locked position, the locking-pin being shown partly raised thereby. Fig. 10 is a view similar to Fig. 6, illustrating a slightly-modified construction.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference-numeral 1 denotes the draw-bar of the coupling, carrying the draw-head 2 of the well-known Janney type, in which is pivoted, by means of pin 3, the usual coupling-hook 4. Passing vertically through the upper and lower apertures

5 and 6 in the draw-head 2 is the locking-pin 7, the same being recessed on its front side at 8 and having the upper face of said recess formed with an inclined or cam surface 9 and its lower face formed with a cam-surface 10 inclining in a direction the reverse of cam-surface 9 and having its upper end projecting slightly beyond the side face of the pin, as shown in Figs. 3 and 7. The tail of the coupling-hook 4 is reversely inclined on its upper and lower surfaces at 11 and 12 to correspond with the inclines 9 and 10, said upper incline 11 merging into a flat surface 13, having a rounded projection 14 centrally located thereon, said projection having a flat top surface 15 at the lower end of incline 9 in a manner hereinafter to be described.

Below the recess 8 in the pin 7 is another recess 16, having its upper edge 17 inclined upwardly and inwardly to engage a shoulder 18, formed on the inner front face of the lower aperture 6 in the draw-head when said pin is raised to the unlocked position, the latter having its upper edge beveled to correspond with that of the upper edge 17 of recess 16, as shown in Fig. 6. It will also be observed that the lower edge 20 of recess 16 is inclined downwardly and that the front side of the locking-pin 7 below said recess projects somewhat beyond the vertical surface of said pin above said recess also for a purpose hereinafter to be described.

Formed in the side of pin 7 and just below the lower edge of the draw-head when said pin is in its lowermost position is an incline 19, adapted to perform the following double function: When the pin 7 is in its lowermost position and the coupling-hook 4 locked thereby, the traction on said coupling-hook will force the locking-pin 7 to the right, as shown in Fig. 7, thus causing incline 19 to underlie the lower edge of the draw-head 2 and effectually preventing any upward creeping of the locking-pin 7, due to the jolting of the cars while in motion, whereby the locking-pin 7 might otherwise ultimately be lifted sufficiently to release the coupling-hook 4. The other function of said incline 19 is performed when the locking-pin 7 is lifted to automatic-

ally throw the coupling-hook 4 to its open position, the contact of incline 19 with the lower edge of the draw-head 2 forcing said pin to the left toward the tail of the coupling-hook, so that the projecting end of lower cam-surface 10 will be thrown more surely beneath corresponding cam-surface 12 on said coupling-hook tail. By referring to Fig. 6 it will be observed that the lower incline 12 on the tail of the coupling-hook 4 is also inclined upwardly and forwardly and that the coacting lower incline 10 on the locking-pin 7 is correspondingly inclined for a purpose hereinafter to be described.

From the above description the operation of my improved construction will be understood to be as follows: With the pin 7 in its lowermost position and the coupling-hook 4 open, as shown in Fig. 1, the device is ready for automatic coupling, the rotation of said hook causing cam-surface 11 on the tail thereof to contact with cam 9 on the pin 7, and thus raise the latter until the coupling-hook tail passes the same, when it will drop automatically, and thus lock the hook in its closed position. Now when it is desired to uncouple the pin 7 is lifted, by means of its cord or chain, until the incline 10 on the pin engages incline 12 on the hook, when by reason of the forward and upward incline of the same, as shown in Fig. 6, the lower end of the pin will be positively tilted forward, thus bringing the recess 16 in said pin in engagement with shoulder 18 in the draw-head when said pin reaches the unlocking position, and thus retaining said pin in this position, so that the coupling-hook 4 may be turned to its open position, thus permitting the cars to separate. By referring to Fig. 8 it will be observed that the locking-pin 7 has its edge or corner nearest the tail of the coupling-hook 4 beveled at 21, and this forward movement of the lower end of said locking-pin brings it into the path of movement of the tail of the coupling-hook 4, so that the latter in its movement to the open or closed position will contact with the beveled edge 21 thereof and automatically force said locking-pin backward again to disengage recess 16 from shoulder 18, thus permitting said locking-pin to drop to its locking position when said coupling-hook has rotated away from engagement therewith. It may happen sometimes, however, that owing to a variation in the castings the tail of the coupling-hook 4 will not be long enough to thus contact with the locking-pin 7, and as it is essential that the latter shall be disengaged from the shoulder 18 and drop to its locking position when the coupling-hook 4 is swung to the closed position I have provided the following means for insuring this result: The locking-pin 7 when in engagement with the shoulder 18 has the lower edge of its incline 9 slightly below the upper edge of the rounded projection 14 on the tail of coupling-hook 4, and the

latter in its movement to the open position will contact with its projection 14 with the flat surface 15 on the locking-pin 7, thus slightly lifting the latter to disengage it from the shoulder 18. By referring to Fig. 6 it will be seen that the flat surface 15 on the locking-pin is also inclined upwardly and outwardly, so that this contact will take place only at a point near the inner end of said flat surface or at the center of gravity of said locking-pin, thus causing said locking-pin to resume its vertical position when lifted from engagement with the shoulder 18, and permitting it to drop free from said projection 18 when released by the coupling-hook tail. It will be further observed that as the flat surface 15 on the locking-pin passes out of contact with the projection 14 on the coupling-hook tail during the movement of the latter to either the locking or the unlocking position it will first drop onto the flat surface 13 on the coupling-hook tail, and said pin will thus be maintained momentarily in the vertical position and will at the same time have dropped sufficiently to bring the upper edge 17 of its recess 16 below the shoulder 18 on the draw-head, so that engagement of the two will be impossible. It follows, therefore, that with the pin 7 in the lock-set position a movement in either direction of the tail of the coupling-hook beneath the surface 15 on the pin 7 will result in the latter being lifted and disengaged from the shoulder 18, so that it will drop to the locking position. It will readily be seen that, if desired, the projection 18 may be located in the rear face of the lower aperture 6 of the draw-head and the recess 16 correspondingly located in the rear face of the locking-pin 7, for by reversing the forward and upward incline of incline 12 and similarly reversing that of incline 10 the result will be that when said incline contact as the locking-pin 7 is lifted the lower end of the latter will be positively forced backward instead of forward, thus insuring the engagement of recess 16 with projection 18, as shown in Fig. 10. With this construction the flat surface 15 of the locking-pin will be inclined upwardly and inwardly instead of upwardly and outwardly, the result being that as the coupling-hook tail passes beneath said flat surface 15 the consequent slight lifting of the locking-pin 7 will result in the lower end of the latter being tilted forward away from engagement with the projection 18, and thus causing the locking-pin to fall to its lowermost position.

It will be observed that the inclining or beveling of the engaging face 17 of recess 16 and the shoulder 18 will insure their engagement better than if said faces were flat, and will effectually prevent their accidental disengagement.

In order to positively rotate the coupling-hook 4 to its open position by means of the

locking-pin 7, I have provided the inclines 10 and 12, operating as follows: When the coupling-hook is locked, but not engaged with another coupling-hook, the lifting of locking-pin 7 will cause the projecting upper end of incline 10 thereon to engage the incline 12 on the tail of said coupling-hook, and the further lifting of said locking-pin necessarily rotates said coupling-hook to its open position in a manner readily understood. In order that this engagement of said inclines may be insured, I have provided the incline 19 on the opposite side of the locking-pin 7, which by its contact with the lower edge of the draw-head as the locking-pin is raised forces said locking-pin toward the tail of the coupling-hook, as seen in Fig. 7. So, also, in order that while the pin 7 is being lifted to throw the coupling-hook open the vertical face of the recess 8 therein may be out of the path of travel of the coupling-hook tail during its rotation to the open position, so that any binding of the parts may be prevented, I have provided the inclined lower face 20 for the recess 16 and have projected the front face of the locking-pin 7 below said recess, the result being that as said pin is lifted said face 20, contacting with the draw-head, will force the lower end of pin 7 backward, and thus carry said pin out of the path of travel of the tail of the coupling-hook. Furthermore, this positive backward movement of the lower end of the pin 7 will permit said pin when released to drop freely to its lowermost position without danger of its engaging projection 18.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having inclines in reverse directions on the upper and under sides of its tail, and a vertically-movable locking-pin for said coupling-hook having inclines similar to those on the tail of the coupling-hook, for the purposes set forth.

2. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, and a vertically-movable locking-pin for said coupling-hook having a similar incline, said inclines being also separately shaped to cooperate to force the locking-pin when in a raised position into engagement with the draw-head.

3. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, and a vertically-movable locking-pin for said coupling-hook having a similar incline, said inclines being also inclined at an angle to their main line of inclination to force the locking-pin into engagement with the draw-head.

4. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, and a vertically-movable locking-pin for said coupling-hook having a similar incline adapted, when said locking-pin is lifted, to engage the incline on the coupling-hook to rotate the latter to its open position, said locking-pin also having an incline adapted, when said locking-pin is lifted, to engage the draw-head to force said locking-pin sideways toward the tail of the coupling-hook.

5. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin for said coupling-hook, adapted in its movement to the unlocking position to engage the aperture in the draw-head in the longitudinal line of said draw-head and be retained in its unlocking position, and means whereby said locking-pin is lifted and disengaged from its engagement with the draw-head by the movement of the coupling-hook on its pivot past said locking-pin and dropped to its initial lowermost position.

6. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a vertically-movable locking-pin, of means in the aperture in the draw-head in longitudinal line of said draw-head for engaging and retaining said locking-pin when raised to the unlocking position, and coacting means on said locking-pin and coupling-hook for positively forcing said locking-pin when lifted into engagement with the draw-head.

7. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin for said coupling-hook, adapted in its movement to the unlocking position to be tilted to engage the aperture in the draw-head in the longitudinal line of said draw-head and be retained in its unlocking position, and engaging surfaces on the tail of the coupling-hook and the locking-pin adapted during the movement of the coupling-hook on its pivot past said locking-pin to contact and lift said locking-pin from engagement with the draw-head, said surfaces also acting to permit said locking-pin to resume its vertical position so as to drop free from the draw-head when released by the tail of the coupling-hook during its movement in either direction.

8. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, and a vertically-movable locking-pin for said coupling-hook having a similar incline adapted, when said locking-pin is lifted, to engage the incline on the coupling-hook to rotate the latter to its open position, said locking-pin also having an incline adapted, when said locking-pin has engaged said coupling-hook, to engage the draw-head to force said locking-pin rearward away from



the path of travel of the vertical face of the coupling-hook tail.

9. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin for said coupling-hook, adapted in its movement to the unlocking position to be tilted to engage the aperture in the draw-head in the longitudinal line of said draw-head and be retained in its unlocking position, and inclines on the tail of the coupling-hook and the locking-pin adapted during the movement of the coupling-hook to its locked or unlocked position to contact and lift said locking-pin from engagement with the draw-head, the incline

on the coupling-hook tail merging into a flat surface having a central rounded projection with a flat top surface operating to lift said locking-pin and to permit it to resume its vertical position and to retain it in said position until it has dropped below the point of engagement with the draw-head.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

J. H. JANNEY,

W. H. JANNEY.

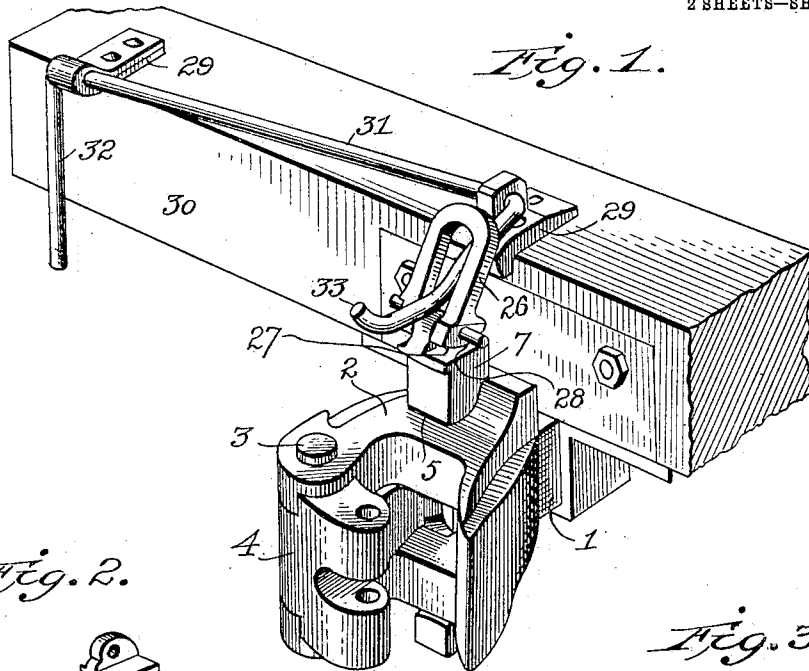
No. 781,950.

PATENTED FEB. 7, 1905.

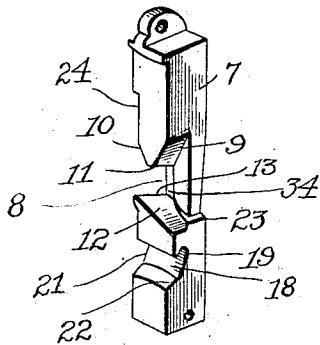
E. H. JANNEY.  
CAR COUPLING.

APPLICATION FILED APR. 21, 1904.

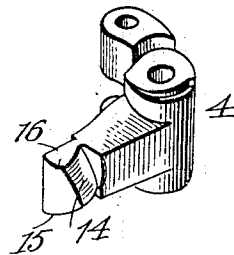
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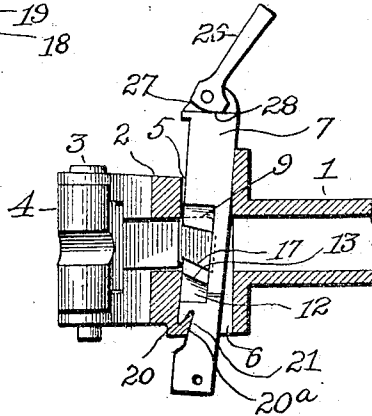
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses  
Edwin L. Yewell  
J. H. Burges Jr.

Inventor  
Eli H. Janney  
By Roy B. Hills  
Attorney

No. 781,950.

E. H. JANNEY.  
CAR COUPLING.  
APPLICATION FILED APR. 21, 1904.

PATENTED FEB. 7, 1905.

2 SHEETS—SHEET 2.

Fig. 5.

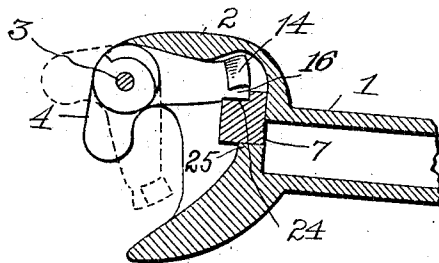


Fig. 9.

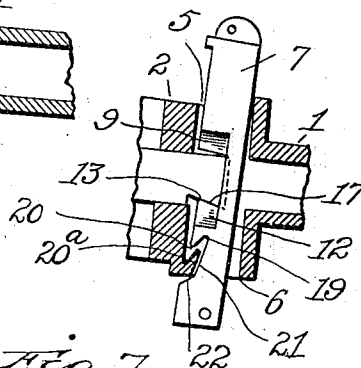


Fig. 6.

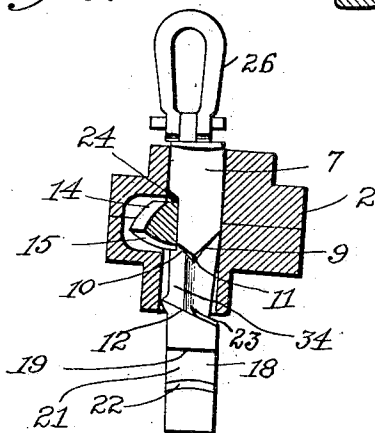


Fig. 7.

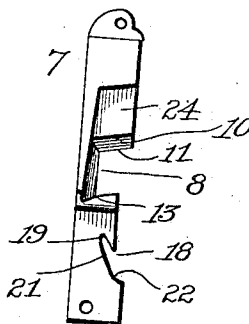


Fig. 8.

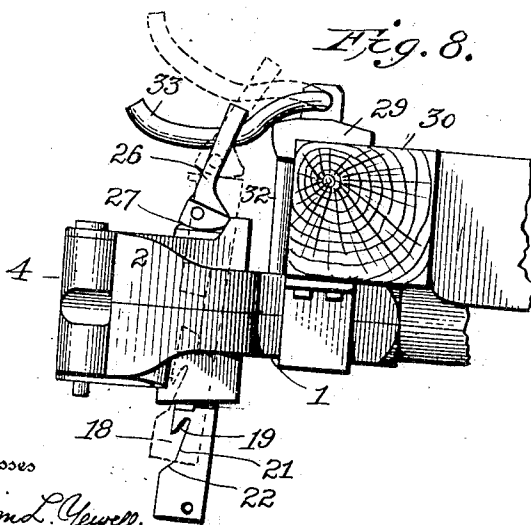
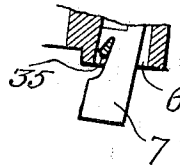


Fig. 10.



Witnesses

Edmund L. Jewell

J. H. B. Jones & Co.

Inventor

Eli H. Janney

by Percy B. Hills

Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 781,950, dated February 7, 1905.

Application filed April 21, 1904. Serial No. 204,214.

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in Fairfax county, State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly to that class known as the "Janney" type, and has for its object to provide certain new and useful improvements over the construction disclosed in an application filed by me May 5, 1903, Serial No. 155,765, as will be hereinafter more definitely described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved coupling, showing the same in its closed position, the pin being set to the lock-set position. Fig. 2 is a detail perspective view of the locking-pin. Fig. 3 is a similar view of the coupling-hook. Fig. 4 is a vertical longitudinal sectional view, the locking-pin being shown in elevation and in the position shown in Fig. 1. Fig. 5 is a horizontal sectional view. Fig. 6 is a vertical transverse sectional view, the locking-pin being shown in full lines. Fig. 7 is a side elevation of the locking-pin detached. Fig. 8 is a side elevation of the coupling and its pin-lifting mechanism, the parts being shown in their lowermost position in full lines and in their lifted position in dotted lines. Fig. 9 is a view similar to Fig. 4, showing the locking-pin in the act of being lifted from the lock-set position by the movement of the coupling-hook tail. Fig. 10 is a detail sectional view of the lower opening for the pin in the draw-head, showing a modified construction.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference-numeral 1 denotes the draw-bar of the coupling, carrying the draw-head 2 of the well-known Janney type, in which is pivoted, by means of pin 3, the usual coupling-hook 4.

Passing vertically through the upper and lower apertures 5 and 6 in the draw-head 2 is the locking-pin 7, the same being recessed on its front side at 8 and having the upper face of said recess formed with a relatively long in-

clined or cam surface 9 and with a relatively short inclined or cam surface 10, inclining in the opposite direction from that of incline 9, the meeting edge 11 of said inclines being on a slight incline upward and forward, as clearly seen in Figs. 4, 6, and 7. The lower face of said recess 8 is formed with a cam-surface 12, inclining in a direction the reverse of cam-surface 9 and having its upper end projecting beyond the side face of the pin. As seen in Fig. 7, the upper portion of said cam-surface 12 is also inclined downwardly from front to rear at 13 for a purpose hereinafter to be described.

The tail of the coupling-hook 4 is reversely inclined on its upper and lower surfaces at 14 and 15 to correspond with the inclines 9 and 12, the upper incline 14 merging into a flat surface 16, while the lower incline 15 is also inclined at 17 to correspond with incline 13 on the pin 7, as seen in Fig. 4.

Below the recess 8 in the pin 7 is another recess, 18, having its upper edge inclined upwardly and inwardly at 19 to engage a recess or seat 20, formed in the inner front face of the lower aperture 6 in the draw-head when said pin is raised to the lock-set or unlocking position, the recess or seat 20 having its edge beveled to correspond with that of upper edge 19 of recess 18, as shown in Fig. 4. It will also be observed that the lower edge of the front face of the lower aperture 6 is inclined at 20° and that the rear face 21 of said recess 18 has a similar inclination downwardly and forwardly, the same merging into a more abrupt inclination 22, and, further, that the front side of the locking-pin 7 below said recess projects somewhat beyond the vertical surface of said pin above said recess for a purpose hereinafter to be described.

Formed in the side of pin 7 and just below the lower edge of the draw-head when said pin is in its lowermost position is an incline 23, adapted to perform the following double function: When the pin 7 is in its lowermost position and the coupling-hook 4 locked thereby, the traction on said coupling-hook will force the locking-pin 7 to the right, as shown in Fig. 6, thus causing incline 23 to underlie the lower edge of the draw-head 2 and effect

usually preventing any upward creeping of the locking-pin 7 while the car is in motion, whereby said pin might otherwise ultimately be lifted sufficiently to release the coupling-hook 4. The other function of said incline 23 is performed when the locking-pin 7 is lifted to throw the coupling-hook 4 to its open position, the contact of incline 23 with the lower edge of the draw-head 2 forcing said pin to the left toward the tail of the coupling-hook, so that the projecting end of lower cam-surface 12 will be thrown more surely beneath corresponding cam-surface 15 on said coupling-hook tail.

On the side nearest the coupling-hook tail when in its locked position the pin 7 is recessed vertically at 24, against which recess the coupling-hook tail bears, while on the opposite side the draw-head is provided with a vertical extension 25, affording an increased bearing-surface for the pin 7 when under the tension of the coupling-hook, as seen in Fig. 5.

Pivoted to the upper end of the pin 7 is a link 26, having a shoulder 27 adapted by its contact with the top of the pin to limit the forward tilt of said link, and a shoulder 28 for limiting its rearward tilt, the same operating to prevent said link from tilting forward beyond the vertical plane of the pin 7, but permitting a more extended rearward tilt thereto, as shown in Figs. 1, 4, and 8. Mounted in brackets 29 on the cross-sill 30 of the car is an operating-rod 31, having a handle 32 at its outer end and an inner bent arm 33, passing loosely through the link 26, said arm being preferably depressed at about its center, as shown in Fig. 8.

From the above description the operation of my improved construction will be understood to be as follows: With the pin 7 in its lowermost position and the coupling-hook 4 open the device is ready for automatic coupling, the rotation of said hook causing cam-surface 14 on the tail thereof to contact with cam 9 on the pin 7, and thus raise the latter until the coupling-hook tail passes the same, when it will drop automatically, and thus lock the hook in its closed position. Now when it is desired to uncouple, the pin 7 is lifted, by means of rod 31, in the manner hereinafter described, until the incline 13 on the pin engages the incline 17 on the hook, when by reason of the forward and upward inclination of the same, as shown in Figs. 4 and 9, the lower end of the pin will be positively tilted forward, thus bringing the upper edge 19 of lower recess 18 in said pin immediately over the recess or seat 20 in the lower aperture 6 of the draw-head, as shown in Fig. 9, so that when the pin 7 is released it will drop into recess or seat 20, thus assuming the lock-set position shown in Fig. 4, so that the coupling-hook 4 may be turned to its open position, thus permitting the cars to separate.

In the application filed by me and heretofore referred to I have shown the locking-pin 7 adapted to be supported in the lock-set position by means of a shallow recess or seat in the draw-head, and an important feature of the present invention is to deepen this recess or seat, so that the pin may not be accidentally displaced therefrom and at the same time to provide means for positively lifting said pin from its engagement therewith during the rotation of the coupling-hook to the open or closed position. This object I accomplish by providing the short incline 10 on the pin, which forms, in conjunction with the incline 9 thereon, the edge 11, inclined upwardly and forwardly. Now as the coupling-hook starts to rotate to its open position the upper edge of the front face of its tail will at once contact with the short incline 10, which in the lock-set position of the pin lies lower than said flat surface 16 and will raise said pin sufficiently to free the latter from its engagement with the recess or seat 20, and as the edge 11 is reached the upward and outward inclination of the same will permit a contact between it and surface 16 only at the extreme inner portion of said edge or at the center of gravity of said pin, thus causing said pin to resume its vertical position and permitting it to drop free from said recess or seat 20 when released by the coupling-hook tail. While it is preferred to incline the edge 11 as described in order to accomplish this result, the same effect may be obtained by inclining the flat surface 16 upwardly, so that only its extreme outer end will contact with the edge 11, as will be readily understood.

In order to positively rotate the coupling-hook 4 to its open position by means of the locking-pin 7, I have provided the inclines 12 and 15, operating as follows: When the coupling-hook is locked, but not engaged by another coupling-hook, the lifting of locking-pin 7 will cause the projecting upper end of incline 12 thereon to engage the incline 15 on the tail of said coupling-hook, and the further lifting of said locking-pin necessarily rotates said coupling-hook to its open position in a manner readily understood. In order that this engagement of the inclines may be insured, I have provided the incline 23 on the opposite side of the locking-pin 7, which by its contact with the lower edge of the draw-head as the locking-pin is raised forces said locking-pin toward the tail of the coupling-hook, as seen in Fig. 6. By providing the recess 24 in the side of locking-pin 7, with which the coupling-hook tail contacts when locked, I cause said tail to lie more surely in the path of the incline 12, as also seen in Fig. 6.

Referring now to the operation of the pin-lifting mechanism, it will be observed that the link 26, pivoted to the upper end of locking-pin 7, loosely embraces the bent arm 33 of operating-rod 31 and that said link because

of shoulders 27 and 28 cannot tip forward beyond the vertical position; though permitted a limited rearward tilt, as seen in Fig. 4. It will also be observed that said link 26 is pivoted to the pin 7 forward of the transverse vertical center of the latter and that when said pin is in its locking position (shown in Fig. 8) said link engages the arm 33 at the point of lowest depression of the latter, the result being that when said arm is lifted by means of handle 32 that portion of said arm in front of the depressed portion will at once begin to assume an upward angle, carrying link 26 to the rear, which, together with the forward pivotal point of attachment of said link to the pin 7, will bring the lower end of said pin 7 forward as it is lifted by said arm 33 and will thus more surely cause an engagement of edge 19 and shoulder 20 to retain the pin 7 in the lock-set position. A further and more important function of the pin-lifting mechanism, however, resides in the fact that owing to the construction of link 26 and lifting-arm 33 any breaking of the coupler-bar whereby the coupling is pulled away from the car will not break the lifting mechanism, the link 26 passing freely off the end of arm 33, leaving the latter intact, which is necessarily not the case with the chain connections now in use.

By providing the rear face 21 of recess 18 with the initial inclination it will be seen that as pin 7 is lifted above the lock-set position to throw the hook open, as shown in Fig. 9, the contact with said inclined surface with the inclined surface 20<sup>a</sup> will immediately tend to force the pin 7 to the rear, this movement being increased as the more abrupt inclination 22 is reached, the result being that when said pin 7 is thus lifted an immediate movement away from the shoulder 20 is begun, which is increased by the incline 22, so that when said pin is released it will drop to its lowermost position. This feature functions only when the pin 7 is lifted to automatically throw the hook 4 open, the tendency of the contact between the inclines 13 and 17, as well as the point of application of the lift to the pin, being to force the lower end of the pin forward, which is effectually counteracted by the inclines 20<sup>a</sup>, 21, and 22, which not only force the lower end of the pin to the rear, thereby carrying the rear vertical wall of the recess 8 in the pin away from the path of travel of the coupling-hook tail, but also aid in throwing the coupling-hook open.

In order that the pin 7 may have the necessary lateral play without contacting with the end of the coupling-hook tail, I deepen the recess 8 thereof at 34 to receive the tail of the coupling-hook when in its locked position, the action of the inclines 20<sup>a</sup>, 21, and 22, above described, as well as the action of flat surface 16 and edge 11 when the hook is opened with the pin in the lock-set position, being such

that the pin 7 will be forced rearward, so as to prevent any contact vertically between said pin and the end of the coupling-hook tail as the latter moves to the open position, thereby preventing any possible binding between these parts during this movement.

In Fig. 10 I have shown a slightly-modified construction, the recess or seat 20 instead of being formed in the wall of the draw-head being replaced by a removable cross-bar 35, with which the inclined edge 19 engages to maintain the locking-pin in the lock-set position, the rounded surface of said cross-bar performing the function of the incline 20<sup>a</sup>. By employing said cross-bar 35 lodgment of dirt at this point is prevented, and, furthermore, the usual cotter-pin for preventing complete withdrawal of the pin 7 from the draw-head may be dispensed with, said cross-bar 35 projecting sufficiently far in the aperture 6 to prevent the passage of the lower end of the pin, it being understood that said cross-bar is to be inserted after the pin 7 has been located in position.

While I have illustrated and described the coupling-hook as provided with a flat surface 16 on the upper face of its tail, such construction is not a necessary feature, the device operating equally as well with the incline 14 extended to the front face of the coupling-hook tail.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having inclines in reverse directions on the upper and under sides of its tail, and a vertically-movable locking-pin for said coupling-hook having inclines similar to those on the tail of the coupling-hook, and also having an additional upper incline the reverse of the main incline.

2. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin, means for maintaining said locking-pin in position to permit the movement of the coupling-hook to the open position, and an incline on said locking-pin with which the upper edge only of the front face of said coupling-hook contacts during its movement to the open position, and whereby said locking-pin will be lifted to disengage it from its supporting means.

3. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein, and a vertically-movable locking-pin having an incline adapted to be engaged by the upper edge only of the front face of the coupling-hook tail as the latter moves to the open position, whereby said pin is lifted.

4. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin for said coupling-hook adapted in its move-

ment to the unlocking position to engage the draw-head and be retained in its unlocking position, and inclines on said locking-pin adapted by contact with the draw-head, when  
5 said pin is raised farther, to first give it an initial slight movement away from the draw-head at the engaging point, and to give it a more pronounced movement as said pin is further lifted.

10 5. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-moving locking-pin for said coupling-hook, a removable cross-bar in the draw-head with which the locking-  
15 pin is adapted to engage in its movement to the unlocking position and by which it is retained in its unlocking position, and inclines on said locking-pin adapted by contact with said cross-bar, when said locking-pin is raised  
20 farther, to first give the latter an initial slight movement away from the draw-head at the engaging point, and to give it a more pronounced movement as said pin is further lifted.

25 6. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-moving locking-pin,

a link pivoted to the upper end of said pin and having a limited movement on its pivot in a rearward direction only, and an operating-rod carried by the car-body and having  
30 an arm detachably engaging said link, whereby said link and its pin may be raised and lowered.

7. In a car-coupling, the combination with 35 the draw-head, and a coupling-hook pivoted therein, of a vertically-moving locking-pin, a link pivoted to the upper end of said pin and having a limited movement on its pivot in a rearward direction only, and an operating-rod carried by the car-body and having  
40 an arm detachably engaging said link and adapted to raise and lower the same and its link, said arm in such movement exerting a rearward tilting action on the upper end of  
45 said pin.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

PERCY B. HILLS,  
J. H. BURGESS, Jr.

E. H. JANNEY.

CAR COUPLING.

APPLICATION FILED JUNE 18, 1906. RENEWED NOV. 24, 1908.

974,154.

Patented Nov. 1, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

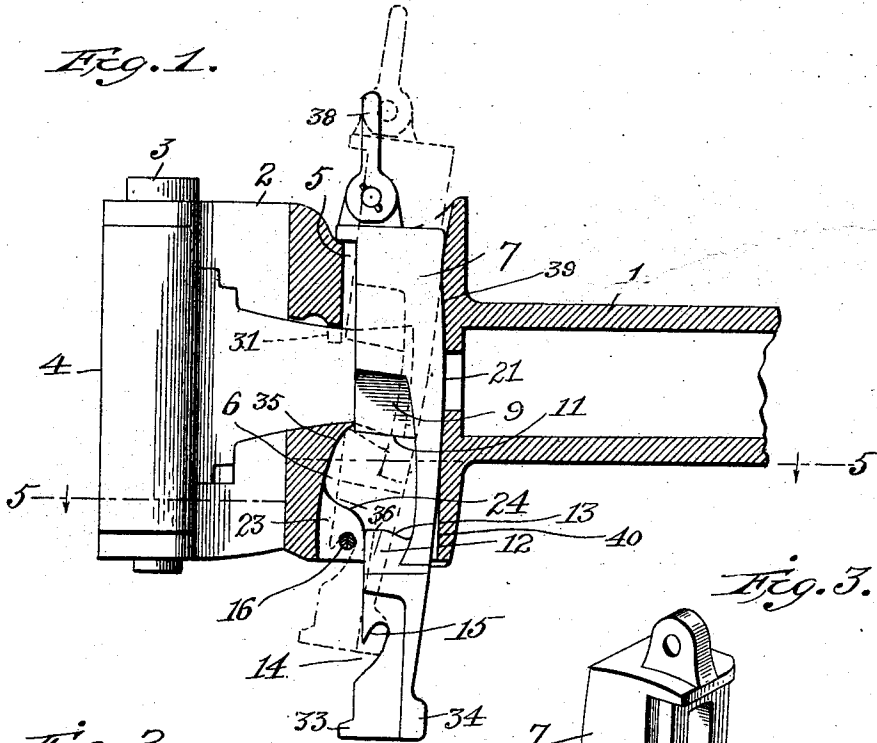


Fig. 2.

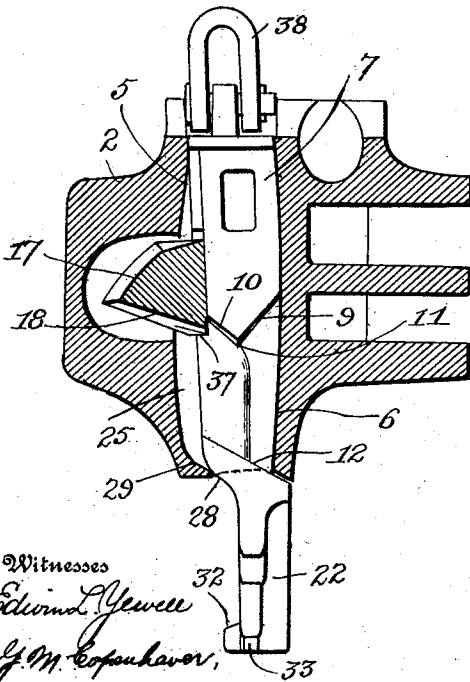
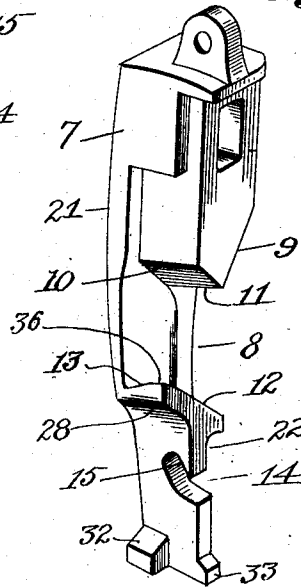


Fig. 3.



Witnesses  
Edmund Yewell  
J. M. Coppenhaver,

Eli H. Janney  
By Percy B. Hills

Inventor

Attorney



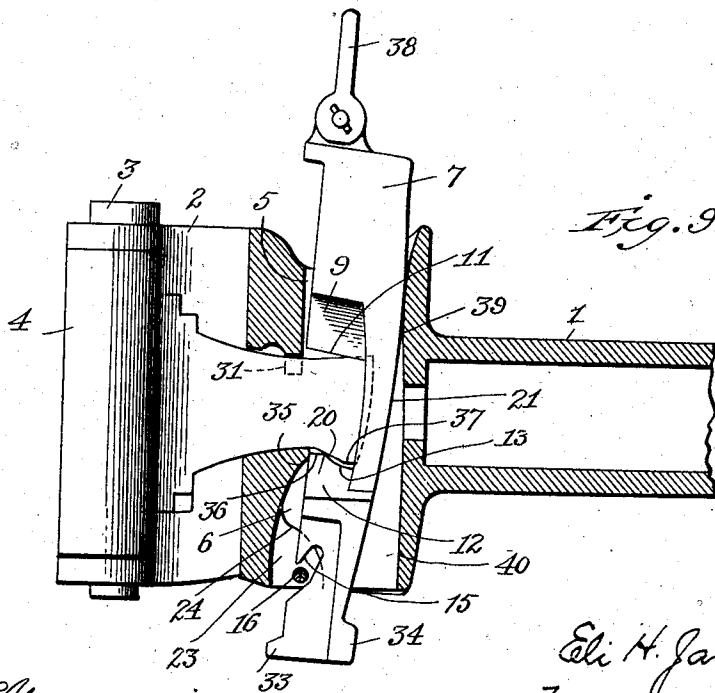
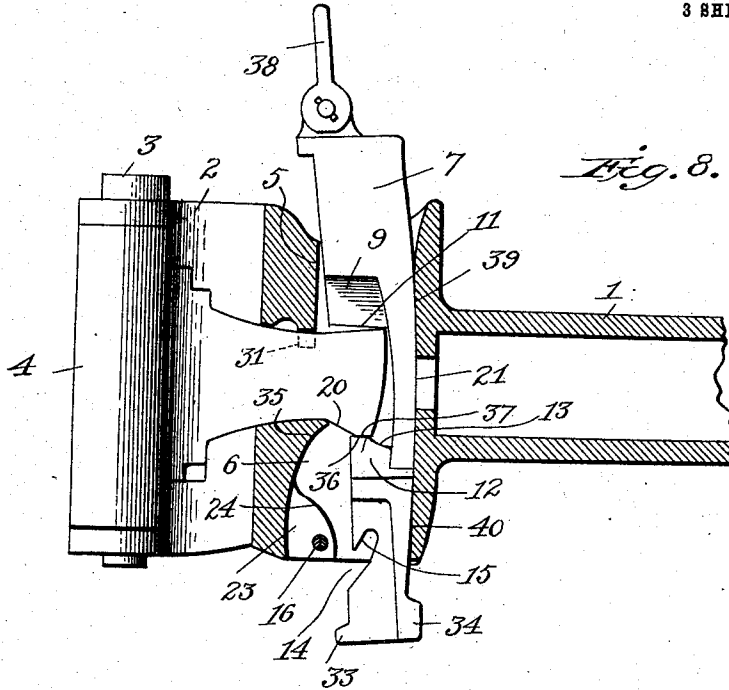
E. H. JANNEY.  
CAR COUPLING.

APPLICATION FILED JUNE 18, 1908. RENEWED NOV. 24, 1908.

974,154.

Patented Nov. 1, 1910.

3 SHEETS—SHEET 3.



Witnesses

Edwin L. Jewell  
J. M. Coplanhawer.

Inventor

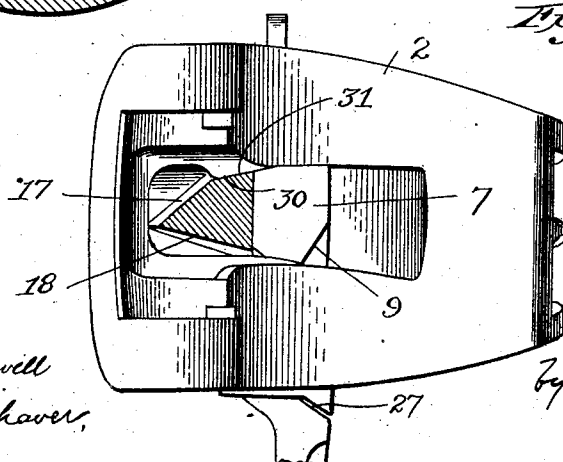
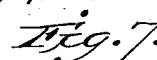
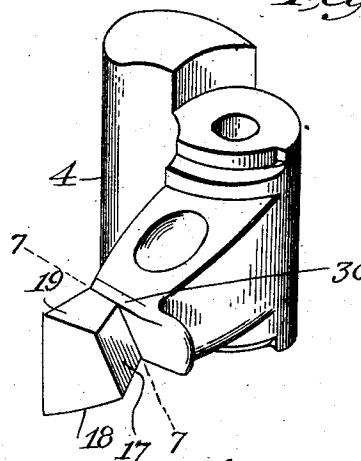
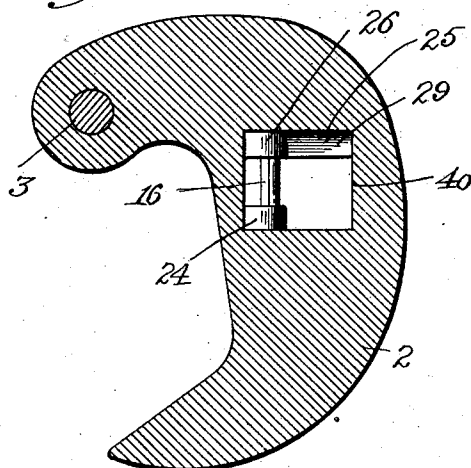
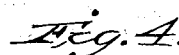
Eli H. Janney  
by Percy B. Hills

Attorney

APPLICATION FILED JUNE 18, 1906. RENEWED NOV. 24, 1908.

Patented Nov. 1, 1910.

3 SHEETS--SHEET 2.



Inventor  
Eli H. Janney  
by Percy B. Hill  
Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

974,154.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed June 18, 1906, Serial No. 322,331. Renewed November 24, 1908. Serial No. 464,286.

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in Fairfax county, State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car couplings of the "Janney" type, and has for its object to provide certain improvements over the construction disclosed in Letters Patent No. 781,950, granted to me February 7, 1905, as will be hereinafter more definitely described and claimed.

In the accompanying drawings: Figure 1 is a vertical longitudinal sectional view of my improved coupling, taken on the line 1—1, Fig. 4, the locking pin and coupling hook being shown in elevation. Fig. 2 is a vertical transverse sectional view, taken on the line 2—2, Fig. 4, the locking pin being shown in elevation. Fig. 3 is a detail perspective view of the locking pin. Fig. 4 is a bottom plan view of the coupling. Fig. 5 is a horizontal sectional view of the draw-head, taken on the line 5—5, Fig. 1, the locking pin being removed. Fig. 6 is a detail perspective view of the coupling hook. Fig. 7 is a front elevation of the draw-head, the coupling hook being shown in section on the line 7—7, Fig. 6. Fig. 8 is a view similar to Fig. 1, showing the position assumed by the locking pin when lifted by the coupling hook tail as the latter moves toward the closed position. Fig. 9 is a similar view showing the position assumed by said locking pin when raised by its lifting means.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawing the reference numeral 1 denotes the draw-bar of the coupling, carrying the draw-head 2, in which is pivoted, by means of the pin 3, the usual coupling hook 4. Passing vertically through the upper and lower apertures 5 and 6 in the draw-head 2 is the locking pin 7, the same being recessed on its front side at 8 and having the upper face of said recess formed with a relatively long inclined or cam surface 9 and with a relatively short inclined or cam surface 10, inclining in the opposite direction from that of incline 9, the meeting edge 11 of said inclines being on a slight incline upward and forward. The lower face of said recess 8 is formed with a cam surface 12 inclining

in a direction the reverse of cam surface 9 and having its upper end projecting beyond that portion of the side face of the pin against which the tail of the knuckle contacts when in locked position. As seen in Fig. 3, the upper portion of said cam surface 12 is also inclined downwardly from front to rear at 13. Below the recess 8 in the pin 7 is another recess 14, having its upper edge inclined upwardly and inwardly at 15 to engage a cotter pin 16 removably located in the draw-head, said cotter pin performing the double function of supporting the locking pin in the lock-set position, and preventing the complete withdrawal of the locking pin from the draw-head. The tail of the coupling hook 4 is reversely inclined on its upper and lower surfaces at 17 and 18 to correspond with the inclines 9 and 12, the upper incline 17 merging into a comparatively flat surface 19, while the lower incline 18 is also inclined at 20 to correspond with incline 13 on the pin 7.

All of the above parts being constructed to operate as described in my Letters Patent hereinbefore referred to, further detailed description of the same is deemed unnecessary.

Referring to Fig. 1, it will be seen that the rear wall of the apertures 5 and 6 in the draw-head 2 is slightly concaved to correspond with a similar convexity 21 on the rear face of the locking pin 7, the object of the same being to permit said pin, when lifted by the movement of the coupling hook 4 to the closed position, to hug said concaved surface, whereby, when released by said coupling hook, it will drop free from the lock-set pin 16 to its locking position.

The lower end of the locking pin 7 is cut away on one side at 22 to form a narrow surface in which is formed the recess 14, while that portion of the lower aperture 6 in the draw-head that receives the cotter-pin 16 is correspondingly narrowed by an abutment 23, whereby but a short portion of said cotter-pin is unsupported, the construction not only diminishing the danger of the cotter-pin being bent while acting as the lock-set for the locking pin 7, but also diminishing the weight of the locking pin. Said abutment 23 terminates in an inclined surface 24 just above the cotter-pin 16, while the opposite side of the draw-head is recessed at 25, as seen in Figs. 2 and 5, to permit the sidewise movement of the locking pin 7 when lifted, as hereinafter described,

said recess 25 being provided with an abutment 26 similar to abutment 23 receiving the cotter-pin 16. By terminating the abutments 23 and 26 just above the cotter-pin 16 room is provided for the forward movement of the lower end of the locking pin 7 when moved to the lock-set position.

As described in my Letters Patent hereinbefore mentioned, the projecting portion at the lower side of incline 12 of the locking pin 7 performs the double function of an anti-creeping device and a means for throwing the locking pin beneath the tail of the coupling hook. An important feature of my present invention consists in providing said locking pin with an incline 28, substantially opposite to the incline 12, which, when the locking pin is in its lowermost position, engages a similar incline 29 formed in the lower aperture 6 of the draw-head at the lower end of the recess 25, as best seen in Fig. 2. The function of these inclines 28 and 29 is to facilitate the initial upward movement of the locking pin 7 when the incline 17 on the coupling hook tail engages the incline 9 on said locking pin during the movement of the coupling hook to the closed position. It will be apparent that, when said inclines 17 and 9 contact, a sidewise pressure toward incline 29 will be exerted on the locking pin 7, and the contact of incline 28 on the locking pin with incline 29 in the draw-head will instantly cause an initial rise of said locking pin, which would take place even if not assisted by the action of inclines 17 and 9. Through this initial rise thus imparted to the locking pin, the inclines 17 and 9 are in better coöperative position to continue the lift, and any binding action against the left hand side of the draw-head is thus effectually obviated.

By referring to Figs. 6 and 7 it will be seen that the top surface of the coupling hook tail, just to the rear of the surface 19, is provided with a transverse incline 30, while the upper inner surface of the draw-head that lies immediately above said incline 30 when the coupling hook is closed is similarly inclined at 31, the function of said inclines being to engage when the tail of the coupling hook is lifted slightly under a locking pin opening movement and to thus facilitate the opening movement of the coupling hook. And this engagement will become permanent when wear on the pivot pin 3 has permitted any vertical movement to said coupling hook.

On one side of the locking pin 7 at its lower end I provide a projecting incline 32, whose function it is, when the incline 12 on said locking pin has engaged the incline 18 on the coupling hook tail and has begun to force said coupling hook to the open position, to contact with the lower edge of the draw-head, just below the incline 29 therein,

and thus force said locking pin, in the direction of movement of the coupling hook tail, thus aiding in forcing the latter to the open position.

By providing the front and rear projections 33 and 34 at the lower end of the locking pin 7, I furnish a sufficient width to said pin from front to rear to prevent its being lifted past the cotter-pin 16, so that said pin can be removed from the draw-head only when said cotter-pin has been removed.

Referring more particularly to Figs. 1 and 9, it will be seen that the front wall of the lower aperture 6 in the draw-head is inclined rearward and upward at its upper end at 35, the function of the same being to contact with the edge of the incline 12 on the locking pin the instant said locking pin is lifted from the lock-set position and thus at once begin to force the lower end of said locking pin rearward out of the line of engagement with the lock-set cotter-pin 16.

I have found in practice that, when my improved coupling is struck with considerable force during the act of coupling, the operation of the inclines 28 and 29, in conjunction with that of the inclines 9 and 17, is to throw the locking pin 7 upward sufficiently far to cause the inclines 13 and 20 on the locking pin and coupling hook tail, respectively, to contact, thus tending to throw the lower end of said locking pin forward and causing it to seat on the lock-set cotter-pin 16, whereby the coupling hook remained unlocked. This difficulty I have overcome by forming flat contact surfaces 36 and 37 on the adjacent points of contact between the inclines 13 and 20, respectively, the result being that, when the coupling hook tail in its passage to the closed position forces up the locking pin 7 to that extent, said flat surfaces 36 and 37 alone will contact, as shown in Fig. 8, thus, by reason of the configuration of the rear wall of the aperture in the draw-head and of the rear surface of the locking pin, the latter is forced, in the act of lifting, to hug said rear wall of the draw-head aperture, and thus prevent any forward impetus being given to the lower end of the locking pin, the latter dropping free from the lock-set to its locking position.

It will be observed that the locking pin 7 in its movement vertically has two distinct modes of operation, the same being dependent entirely upon the manner in which it is lifted, as follows: When lifted by the link 38, the tendency is to tilt the upper end of said locking pin backward, and thus throw its lower end forward, as clearly shown in Fig. 9, but, when lifted by the engagement of the inclines 9 and 17, during the movement of the coupling hook to the closed position, the tendency is to force the

lower end of the locking pin backward to its limit of movement in that direction. This results in the curved rear face 21 of the locking pin hugging the rear wall of the apertures 5 and 6 in the draw-head, and as said locking pin is lifted the curve 39 in the draw-head will gradually throw the upper end of the locking pin forward, and consequently keep its lower end rearward, closely hugging the straight lower rear wall 40 of the draw-head, as clearly shown in Fig. 8. The necessary result of this operation is that, when the locking pin is forced upward with sufficient force to cause it to contact with the under side of the coupling hook tail, the flat surfaces 36 and 37 only can come into contact, thereby effectually preventing any forward movement being imparted to the lower end of the locking pin, and causing the latter to drop free from the lock-set, as hereinbefore described. Furthermore, this rearward movement of the locking pin permits a more perfect contact between the inclines 9 and 17 during the closing movement of the coupling hook, as it allows said locking pin to accommodate itself to the movement in the arc of a circle of the coupling hook tail, a result obviously impossible when the locking pin is limited to a vertical movement only.

The operation of the coupling, except as hereinbefore specifically set forth, being the same as that described in detail in my Letters Patent hereinbefore referred to, further description of its operation is deemed unnecessary.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, and a vertically moving locking and coupling hook opening pin for said coupling hook adapted to be automatically lifted by said coupling hook during the movement of the latter to the closed position, of cooperating means in the side of said draw-head and locking pin for imparting to the latter an initial upward movement when contacted with by said coupling hook.

2. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, and a vertically moving locking and coupling hook opening pin for said coupling hook adapted to be automatically lifted by said coupling hook during the movement of the latter to the closed position, of cooperating inclines in the side of said draw-head and locking-pin for imparting to the latter an initial upward movement when contacted with by said coupling hook.

3. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and means on

said locking pin and coupling hook for rotating the latter to the open position when the former is raised into contact therewith, of cooperating means on said coupling hook and draw-head for facilitating the rotation of said coupling hook to the open position.

4. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and means on said locking pin and coupling hook for rotating the latter to the open position when the former is raised into contact therewith, of cooperating inclines on said coupling hook and draw-head for facilitating the rotation of said coupling hook to the open position.

5. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and means on said locking pin and coupling hook for rotating the latter to the open position when the former is raised into contact therewith, of cooperating means on said locking pin and draw-head for causing said locking pin to move bodily laterally in the direction of rotation of said coupling hook as it is forced open by the lifting of said locking pin.

6. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and means on said locking pin and coupling hook for rotating the latter to the open position when the former is raised into contact therewith, of an incline on said locking pin adapted to contact with said draw-head, when said locking pin is lifted to force the coupling hook open, and to force said locking pin bodily laterally in the direction of rotation of said coupling hook.

7. In a car coupling, the combination of the draw-head, having upper and lower apertures therein the lower aperture having a transversely narrowed portion, a coupling hook therein, a vertically movable locking pin for said coupling hook having a narrowed portion containing a lock-set recess, and a removable pin forming the lock-set seat located in said draw-head in the narrowed portion of the lower aperture thereof.

8. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and cooperating inclines on the under side of the coupling hook tail and on the locking pin, said inclines being flattened at their adjacent points.

9. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, and a vertically movable locking pin for said coupling hook, the rear wall of the draw-head aperture receiving said locking

pin being curved to project the upper end  
of the locking pin forward and the rear face  
of said locking pin being similarly curved  
to coöperate to cause said locking pin, when  
5 lifted and forced backward, to move in the  
arc of a circle that will bring its upper end  
forward and keep its lower end rearward.

In testimony whereof, I have hereunto set  
my hand in the presence of two subscribing  
witnesses.

ELI H. JANNEY.

Witnesses:

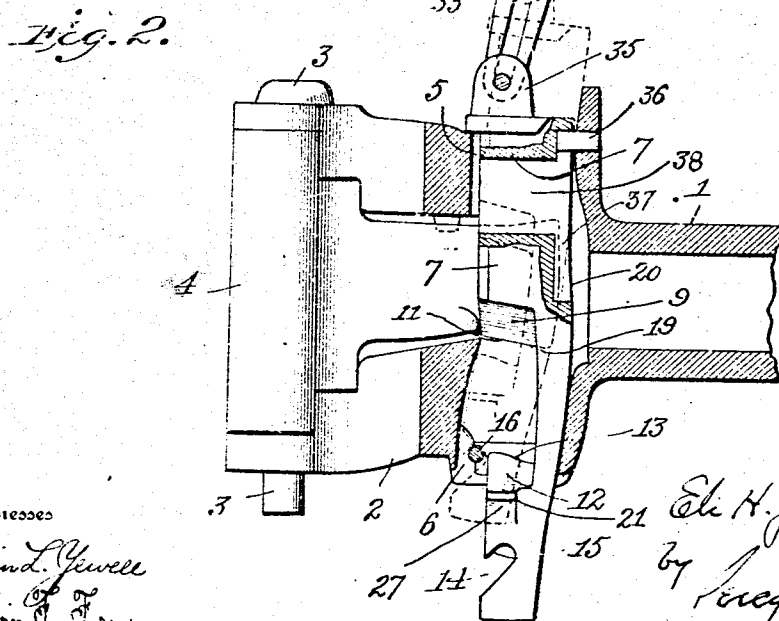
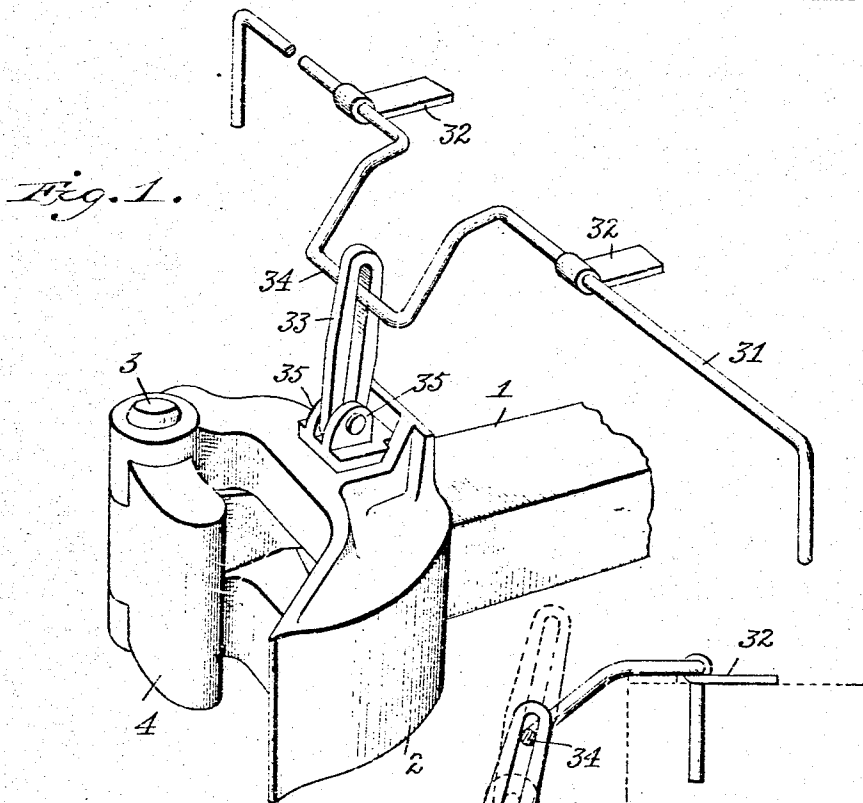
PERCY B. HILLS,  
EDWIN L. YEWELL.

E. H. JANNEY.  
CAR COUPLING.  
APPLICATION FILED MAR. 21, 1907.

974,153.

Patented Nov. 1, 1910.

3 SHEETS-SHEET 1.



Witnesses  
Edmund L. Yewell  
Edwin F. Frey

Inventor

E. H. Janney

by Percy B. Heller  
Attorney

E. H. JANNEY.  
CAR COUPLING.  
APPLICATION FILED MAR. 21, 1907.

974,153.

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3 SHEETS-SHEET 2.

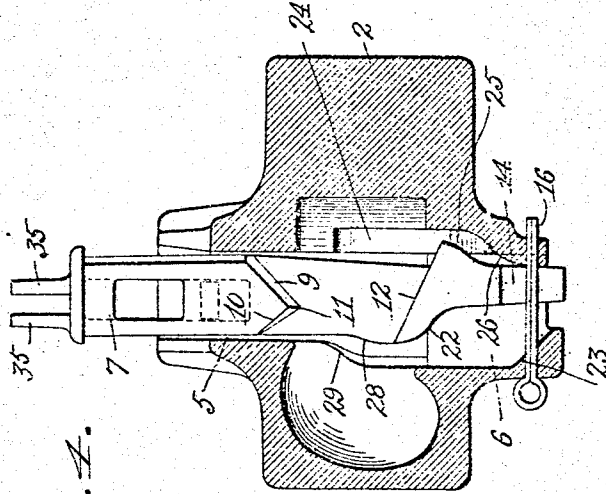


Fig. 4.

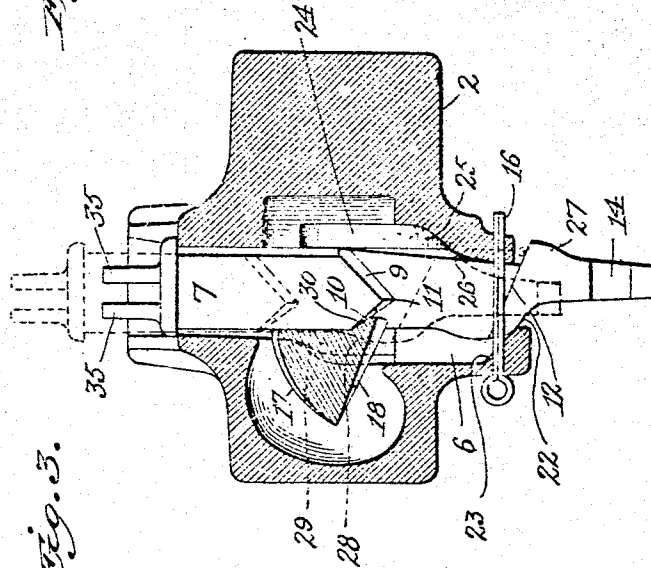


Fig. 3.

Witnesses

Edwin L. Yewell  
Edwin F. Fry

Inventor

Eli H. Janney  
by Percy B. Hills  
Attorney

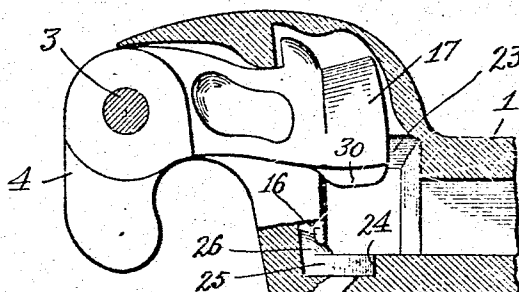


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CAR COUPLING.  
APPLICATION FILED MAR. 21, 1907.

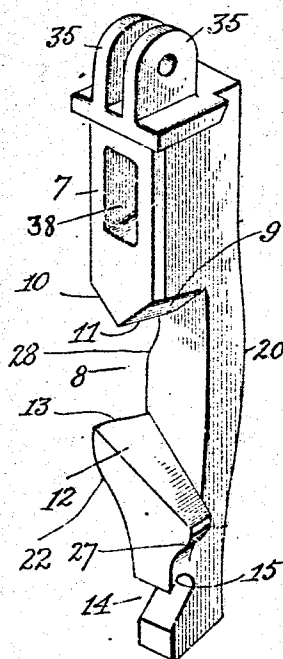
974,153.

Patented Nov. 1, 1910  
3 SHEETS—SHEET 3.

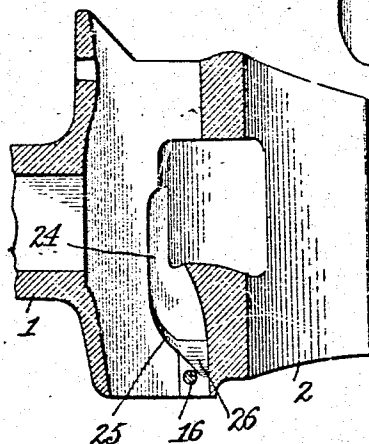
*Fig. 5.*



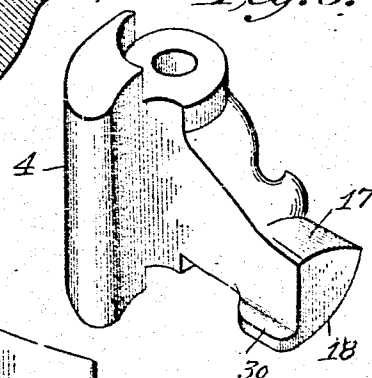
*Fig. 7.*



*Fig. 6.*



*Fig. 8.*



Witnesses  
Edwin L. Jewell  
Edwin F. Frey

Inventor  
Eli H. Janney  
by Percy B. Hills  
Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

## CAR-COUPLING.

974,153.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed March 21, 1907. Serial No. 363,635.

To all whom it may concern:

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in Fairfax county, State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car couplings of the "Janney" type, and has for its object to provide certain improvements over the construction disclosed in an application filed by me June 18, 1906, Serial No. 322,331, as will be hereinafter more definitely described and claimed.

In the accompanying drawings: Figure 1 is a perspective view of my improved coupling, showing an improved means for operating the locking pin. Fig. 2 is a central vertical longitudinal sectional view, the locking pin being shown partly in elevation and partly broken away. Fig. 3 is a vertical transverse sectional view taken just in front of the locking pin, showing said pin in full lines in its lowermost or locking position, and in dotted lines in the lock-set position. Fig. 4 is a view similar to Fig. 3, the coupling hook being swung open and the locking pin being shown raised to the highest position it will assume when lifted by said coupling hook. Fig. 5 is a central horizontal sectional view, the coupling hook being shown in plan, and the draw head being partly broken away to show underlying parts. Fig. 6 is a view similar to Fig. 2, but looking in the opposite direction, the locking pin and coupling hook being removed. Fig. 7 is an enlarged detail perspective view of the locking pin. Fig. 8 is a similar view of the coupling hook.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference numeral 1 denotes the draw-bar of the coupling, carrying the draw-head 2, in which is pivoted, by means of the pin 3, the usual coupling hook 4. Passing vertically through the upper and lower apertures 5 and 6 in the draw-head 2 is the locking pin 7, the same being recessed on its front side at 8 and having the upper face of said recess formed with a relatively long inclined or cam surface 9 and with a relatively short inclined or cam surface 10, inclining in the opposite direction from that of incline 9, the meeting edge 11 of said inclines being on a

slight incline upward and forward, as best seen in Figs. 3 and 4. The lower face of said recess 8 is formed with a cam surface 12 inclining in a direction the reverse of cam surface 9 and having its upper end projecting beyond the side face of the pin. As seen in Fig. 2, the upper portion of said cam surface 12 is inclined downwardly from front to rear at 13. Below the recess 8 in the pin 7 is another recess 14, having its upper edge inclined upwardly and inwardly at 15 to engage a cotter pin 16 removably located in the draw-head, said cotter pin performing the function of supporting the locking pin in the lock-set position. The tail of the coupling hook 4 is reversely inclined on its upper and lower surfaces at 17 and 18 to correspond with the inclines 9 and 12 on the locking pin, the lower incline 18 being also inclined at 19 to correspond with the incline 13 on the pin 7, as shown in dotted lines in Fig. 2 said incline 19 lying parallel in said figure with the incline of the meeting edge 11 of inclines 9 and 10 on the locking pin 7.

Referring to Fig. 2, it will be seen that the rear wall of the apertures 5 and 6 in the draw-head is slightly concaved to correspond with a similar convexity 20 on the rear face of the locking pin 7, the object of the same being to cause said pin, when lifted by the movement of the coupling hook to the closed position, to hug said concaved surface, whereby, when released by said coupling hook, it will drop free from the lock-set pin 16 to its locking position. The cam surface or incline 12 of locking pin 7 is projected at its lower end to the right, said projection performing the double function of an antireeeping device and a means for throwing the lower end of the locking pin to the left beneath the tail of the coupling hook. Further, said locking pin is provided with the incline 22, which, when the locking pin is in its lowermost position, engages a similar incline 23 formed in the lower aperture 6 of the draw-head, to impart an initial lift to the locking pin when contacted with by the coupling hook tail in its movement to the closed position.

All of the above parts being constructed to operate as described in my application hereinbefore referred to, further detailed description of the same is deemed unnecessary.

In my improved construction the projection to the right of cam surface or incline 12 aids in performing still another important function, as follows: In this class of couplings the dropping of the locking pin to its lowermost position when the coupling hook is opened has been prevented heretofore by extending the tail of the coupling hook so that it will act as a support for the locking pin at all times except when said coupling hook is in its closed position. Applicant accomplishes this result without employing the extension on the coupling hook tail by providing a recess 24 in the side wall of the draw-head opposite to the coupling hook tail when the latter is in its closed position, said recess being inclined forwardly at its lower end at 25 and merging into another incline 26 at a right angle thereto, said latter incline overlying the cotter pin 16 that constitutes part of the lock-set mechanism, as best seen in Figs. 3, 4, 5 and 6. Now, when the locking pin 7 is in the lock-set position, as shown in dotted lines in Fig. 3, and the coupling hook begins to move toward the open position, the tail of said coupling hook, by its contact with the incline 10 on said locking pin, will raise said locking pin to disengage it from the lock-set, and will at the same time force the lower end of said locking pin to the right, so that, when the edge 11 on said locking pin comes in contact with the coupling hook tail, said locking pin will have assumed the position shown in Fig. 4, with the projection of its cam surface or incline 12 lying in the recess 24 in the draw-head, it being apparent that the movement of the locking pin above described is permitted initially by the sliding contact between the inclines 26 and 27 on the draw-head and locking pin, respectively. Now, as said locking pin is released by the further movement of the coupling hook tail toward the open position, it will drop, but, being guided by the engagement of the projection of incline 12 with recess 24, the under inclined surface 27 of the former will ride forward on the incline 25 and from thence onto the incline 26, which will cause the aperture 14 in said locking pin to again engage the cotter pin 16, thereby supporting said locking pin in the lock-set position. It is desirable that this seating of the locking pin on the lock-set shall also occur when the coupling hook is thrown open by lifting the locking pin until the incline 12 thereon contacts with the incline 18 on the coupling hook tail, and this result is insured by providing an incline 28 on the side of the locking pin 7, and a corresponding incline 29 in the draw-head 2, said inclines contacting as the locking pin approaches its highest limit of movement, which forces the lower end of said locking pin to the right, so that the projection of

incline 12 thereon will engage in the recess 24 under this movement, and, when the locking pin is released to drop, the inclines 25 and 26 will guide said locking pin to cause it to fall onto the lock-set.

It is desired that when the locking pin 7 is lifted to throw open the coupling hook, the lower end of said locking pin move to the right to follow the coupling hook tail in its opening movement. This function is performed by my inclines 28 and 29, and by reason of their location intermediate the length of the locking pin, this movement of the lower end of the locking pin is accomplished by means of smaller inclines than is necessary when said motion is imparted from the lower end of the locking pin. It will thus be seen that said inclines perform the double function of causing the lower end of said locking pin to follow the coupling hook tail in its opening movement, and of causing said locking pin when released to drop onto the lock-set. By these means I provide for the seating of the locking pin on the lock-set whenever the coupling hook is opened, the result being that on the return of the latter to the closed position it is necessary to lift the locking pin only a slight distance, thereby practically accomplishing the result heretofore obtained by extending the tail of the coupling hook to form a locking pin support during the entire open movement of said coupling hook.

I do not wish to confine myself to the use of both the inclines 26 and 27, as it will be evident that either one of the same may be dispensed with and the desired result still obtained, though possibly not in so satisfactory a manner. The incline 12 on the locking pin is projected to the left to more surely engage with the incline 18 on the coupling hook tail when it is desired to throw open the coupling hook by means of said locking pin, this operation being aided by the contact of extension 21 of incline 12 on the locking pin with the draw-head. Now, to still further facilitate this result, I have projected the incline 18 on the coupling hook tail to the right beyond the engaging face of the coupling hook tail with the locking pin, as shown at 30, the result being that the area of initial contact between the inclines 12 and 18 is correspondingly increased, and the initial opening movement of the coupling hook thereby facilitated.

In Figs. 1 and 2 I have illustrated an improved lifting means for the locking pin 7, the same consisting of the usual crank rod 31 pivoted in bearings 32 mounted on the car sill (shown in dotted lines, Fig. 2), and connected with the locking pin by means of a single elongated link 33. The looped portion 34 of the crank rod 31 is of com-

paratively broad area to permit a free lateral movement of the link 33, required because of the lateral movement of the draw-bar in rounding curves, said construction permitting the link 33 to remain substantially vertical in any position of the draw-head, whereby the locking pin may be readily operated on the sharpest curves. Said link 33 is pivoted to the locking pin between two ears 35 to maintain said link substantially vertical. By employing this single connecting link 33 in place of the usual chain connecting the crank rod with the locking pin, I am enabled to dispense with clevises on top of the locking pin and on the crank rod, thereby materially simplifying the construction of this part. A further important advantage obtained by employing the single elongated link 33 is that by means of the same the locking pin 7 may at any time be thrown off the lock-set when, for instance, it has been so set by mistake. Thus, with the locking pin in the lock-set position, as shown in dotted lines in Fig. 2, the link 33 will assume the position shown in dotted lines therein, with the cranked portion 34 of crank rod 31 positioned therein below the longitudinal center of said link. Now, as the crank portion 34 of crank rod 31 is held against further downward movement by the contact of said cranked portion with the car sill, shown in dotted lines in Fig. 2, said cranked portion will act as a fulcrum for said link, and upon pressure being applied, or a blow struck, to the upper end of link 33 in a rearward direction, said link will act to lift and force the upper end of the locking pin 7 forward, thereby forcing its lower end rearward and out of its engagement with the cotter pin 16, and thus releasing said locking pin from the lock-set position.

As shown in Fig. 2, there is located in the rear of upper aperture 5 in the draw-head a stop pin 36 engaging in an elongated vertical slot 37 in the rear face of the locking pin 7, the same limiting the vertical movement of said locking pin when the latter is operatively positioned in the draw-head, and also preventing the withdrawal of the locking pin. To withdraw said locking pin 7 I provide a through aperture 38 in the locking pin 7 through which said stop pin 36 may be reached to remove the same.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking and coupling hook opening pin for said coupling hook, and a lock-set for said locking pin, of cooperating means in said draw-head and on said locking pin for causing said locking pin to engage and be supported by said lock-

set under any opening movement of said coupling hook.

2. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and a lock-set for said locking pin, of cooperating means in the side of said draw-head and on said locking pin for causing said locking pin to engage and be supported by said lock-set under any opening movement of said coupling hook.

3. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and a lock-set in said draw-head for said locking pin, of an incline in the side of said draw-head, and a projection on said locking pin, cooperating, when said locking pin is lifted during any opening movement of the coupling hook, to cause said locking pin, when released, to engage and be supported by said lock-set.

4. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, and a lock-set in said draw-head for said locking pin, of a double incline lying in a recess in said draw-head, and a projection on said locking pin, the whole cooperating, when said locking pin is lifted during any opening movement of said coupling hook, to cause said locking pin, when released, to engage and be supported by said lock-set.

5. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook adapted when raised to its upward limit of movement to force said coupling hook to the open position, a lock-set for said locking pin, and means for causing said locking pin to move toward and engage said lock-set after forcing said coupling hook open.

6. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, a lock-set in said draw-head for said locking pin, and cooperating means on said draw-head and locking pin which, when engaged, will cause said locking pin, when released, to move toward and engage with and be supported by said lock-set, of means for causing said cooperating means to engage when said locking pin is lifted to its upward limit of movement.

7. In a car coupling, the combination with the draw-head, a coupling hook pivoted therein, a vertically movable locking pin for said coupling hook, a lock-set in said draw-head for said locking pin, and cooperating means on said draw-head and locking pin which, when engaged, will cause said locking pin, when released, to engage with and

be supported by said lock-set, of cooperating  
inclines on said draw-head and locking pin  
for causing said cooperating means to en-  
gage when said locking pin is lifted to its  
5 upward limit of movement.

8. In a car coupling, the combination with  
the draw-head, a coupling hook pivoted  
therein, and a vertically movable locking  
pin for said coupling hook having a vertical  
10 slot therein and a through aperture register-  
ing with said slot, of a removable retaining  
pin in the draw-head engaging said slot, in  
the locking pin to limit the vertical move-

ment of the latter, said through aperture in  
said locking pin adapted to register with  
said retaining pin when said locking pin is  
raised, in which position said retaining pin  
may be forced out of operative position to  
permit the withdrawal of said locking pin. 15

In testimony whereof I have hereunto set  
my hand in the presence of two subscribing  
witnesses. 20

ELI H. JANNEY.

Witnesses:

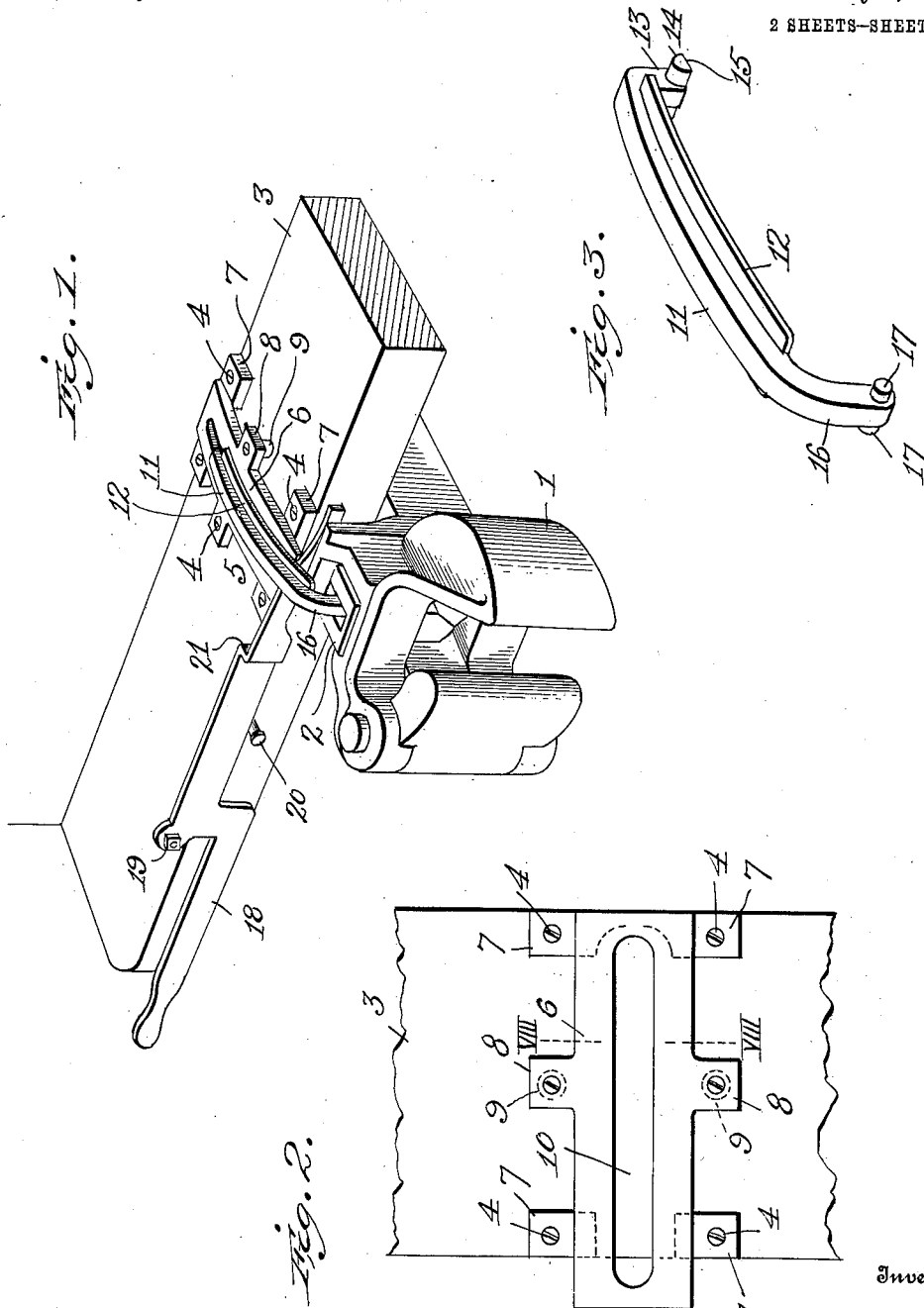
PERCY B. HILLS,  
EDWIN F. FREY

E. H. JANNEY, DEC'D.  
 R. E. L. JANNEY & G. L. BOOTHE, EXECUTORS.  
 LOOKING PIN LIFTING MECHANISM FOR CAR COUPLINGS.  
 APPLICATION FILED AUG. 25, 1908. RENEWED DEC. 12, 1912.

1,095,211.

Patented May 5, 1914.

2 SHEETS-SHEET 1.



Witnesses  
 Edwin L. Jewell  
 Edwin F. Fry

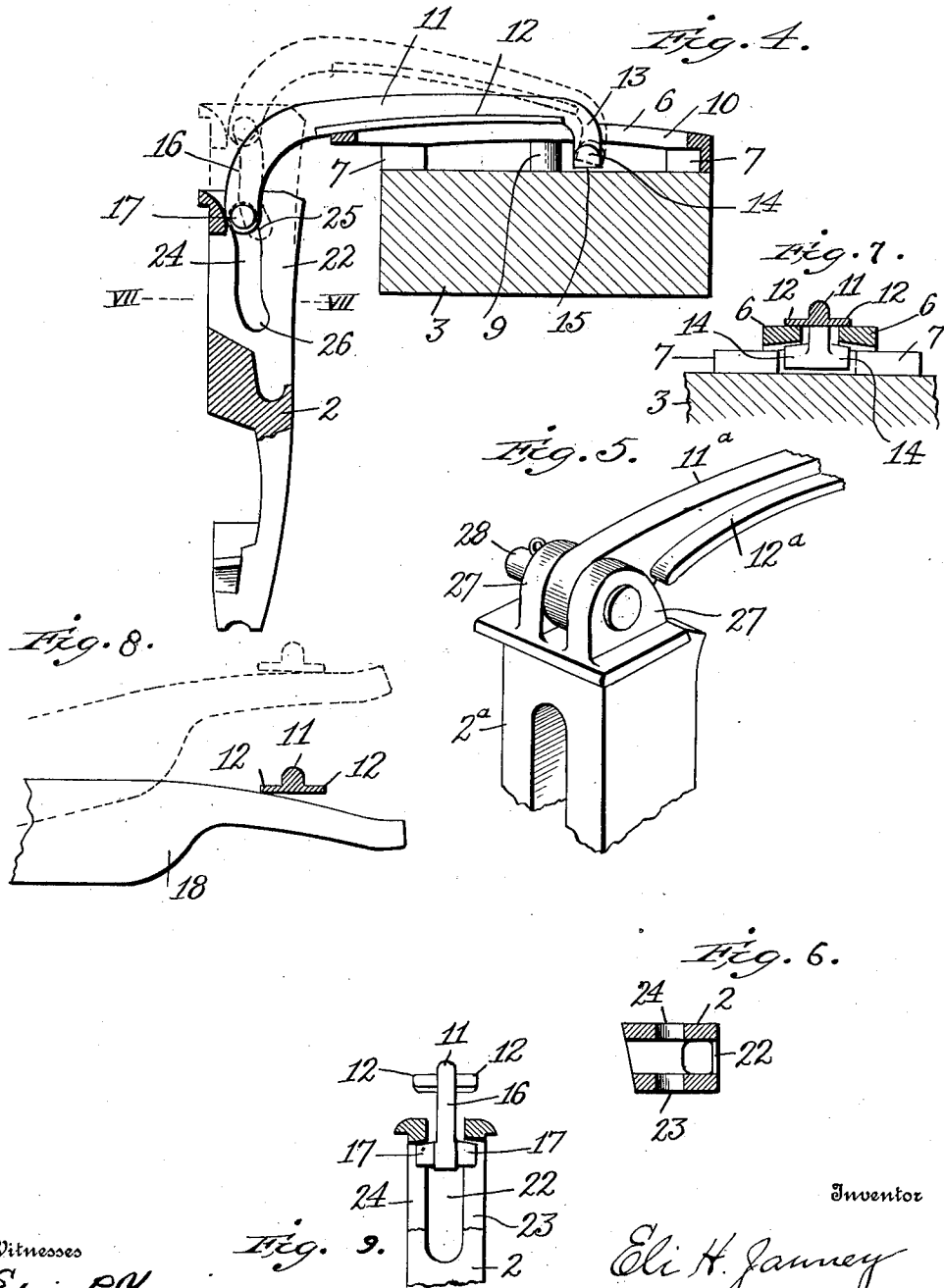
Inventor  
 Eli H. Janney  
 by Percy B. Hills  
 Attorney

E. H. JANNEY, DEC'D.  
 E. E. L. JANNEY & G. L. BOOTHE, EXECUTORS.  
 LOCKING PIN LIFTING MECHANISM FOR CAR COUPLINGS.  
 APPLICATION FILED AUG. 26, 1908. RENEWED DEC. 12, 1912.

1,095,211.

Patented May 5, 1914.

2 SHEETS—SHEET 2.



Witnesses

Edwin L. Jewell  
 Edwin F. Frey

Inventor

Eli H. Janney  
 by Percy B. Hills  
 Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF ALEXANDRIA, VIRGINIA; ROBERT E. L. JANNEY AND GARDNER L. BOOTHE, EXECUTORS OF SAID ELI H. JANNEY, DECEASED, ASSIGNORS TO AMERICAN STEEL FOUNDRIES, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## LOCKING-PIN-LIFTING MECHANISM FOR CAR-COUPPLINGS.

1,095,211.

Specification of Letters Patent.

Patented May 5, 1914.

Application filed August 25, 1908, Serial No. 450,169. Renewed December 12, 1912. Serial No. 736,401.

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing at Alexandria, in the State of Virginia, have invented new and useful Improvements in Locking-Pin-Lifting Mechanisms for Car-Couplings, of which the following is a specification.

My invention relates to devices for lifting the locking pins of car couplings, and has for its object to provide certain improvements in the construction of the same as will be hereinafter more definitely pointed out and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of the end sill of a car showing my improved lifting mechanism in connection with a coupling of the Janney type. Fig. 2 is an enlarged top plan view of the car sill with the pivot guide for the lifting arm in position thereon. Fig. 3 is an enlarged detail perspective view of my improved lifting arm. Fig. 4 is an enlarged vertical transverse sectional view of the car sill taken centrally of the pivot guide, the lifting arm being shown therein in side elevation, and the locking pin of the coupling being shown partly in section. Fig. 5 is an enlarged detail perspective view of a slightly modified construction. Fig. 6 is a sectional view on the line VII—VII, Fig. 4. Fig. 7 is a detail sectional view on the line VIII—VIII, Fig. 2, the lifting bar being also shown thereon in section. Fig. 8 is a detail transverse sectional view through the lifting bar, the inner end of the lifting lever being shown in full lines in the act of contacting therewith to lift the same, and the parts being shown in dotted lines in the lifted position. Fig. 9 is a transverse sectional view of the upper end of the locking pin, the lifting bar being shown in full lines thereon in the act of lifting said pin.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings, referring more particularly to Figs. 1 to 4, the reference numeral 1 denotes a draw-head of the Janney type, in which is located a vertically movable locking pin 2. Fixed to the sill 3 of the car by means of bolts 4 is my improved pivot guide 5, the same consisting of a substantially flat plate 6 supported at its ends upon

cross pieces 7 formed integral therewith and projecting to each side to receive the bolts 4. Said plate 6 is slightly higher at its transverse center than at its ends, as seen in Fig. 4, and is provided on each side of said central portion with ears or lugs 8 having formed integral therewith downwardly projecting feet 9 through which pass the retaining bolts 4, said feet 9 and cross pieces 7 thus supporting the plate 6 raised from the sill 3. Said plate 6 is preferably projected slightly beyond the front edge of the sill, as seen in Fig. 4, and is slotted centrally and longitudinally at 10, said slot extending at its front slightly beyond the front edge of the sill 3, as shown.

Removably located, as hereinafter described, in the slot 10 of plate 6 is a flat lifting bar 11 having side webs 12 adapted to rest on the upper surface of plate 6 on either side of the slot 10, said bar 11 being curved slightly to conform to the upper surface of plate 6. The rear downwardly turned end 13 of said bar 11 is provided with laterally extending pintles 14 having flat under surfaces 15, and slightly inclined upper surfaces adapted to engage the under side of plate 6 on each side of the slot 10 therein. The front downwardly turned end 16 of said bar 11 is also provided with rounded pintles 17 slightly inclined on their upper surfaces and adapted to detachably engage the locking pin 2, as hereinafter described. A lever 18 for operating said lifting bar 11 is pivoted at 19 to the sill 3, said bar preferably dropping on the inner side of said pivot to provide additional weight on that side of said pivot to insure a normal downward position to the inner end of said lever, which is limited by a stop pin 20. The inner end of said lever, which extends beneath the lifting bar 11, is provided with an angle bend at 21 so that said inner end will clear the front projecting end of the plate 6.

The lifting pin 2 to be operated is slotted at 22 in its upper rear face, said slot extending to the top of said pin. Corresponding slots 23 and 24 are also provided in the side faces of said pin opening into the rear slot 22, said slots 23 and 24 being curved forward at their upper ends at 25 and curved backward at their lower ends at 26, and said slot 23 being slightly higher than slot 24, as



seen in Fig. 9, for purposes hereinafter to be described.

By referring to Fig. 7 it will be seen that the under side of plate 6 on opposite sides of the slot 10 is inclined slightly downwardly and outwardly in opposite directions, to conform to the slight taper of the pintles 14, for a purpose hereinafter to be described.

To assemble the parts the lifting bar 11 is first turned to a right angle horizontally to its normal position, in which position the pintles 14 thereof may be inserted into the slot 10 of plate 6. Upon then turning the front end of said bar to its normal position said pintles will be retained in the position shown in Figs. 1 and 4. To connect the lifting bar and the locking pin 2 said bar is lifted at its front end, and said locking pin turned to a horizontal position so that the pintles 17 on said bar may enter slot 22 in said pin. The pin may then be turned again to its vertical position and said pintles 17 will enter and engage in the slots 23 and 24, thus locking the parts against separation. The pin 2 being now inserted in the draw-head 1, the parts are in position for operation.

With the pin in its locking position, as shown in Fig. 1, the depression of the outer end of lever 18 will cause its inner end to contact with the under side of lifting bar 11, and because of the inclined upper surface of said inner end of said lifting bar, this initial contact will be with the edge of the left hand web 12 of said bar, the result being that said bar 11 will be initially tilted slightly to the left and as the slot 24 in pin 2 is slightly lower than slot 23, as seen in Fig. 9, the left hand pintle 17 so tilted with bar 11 will first contact with the upper end of slot 24, and in lifting the pin 2 will tilt the lower end of the latter to the left, thereby causing said locking pin to clear the anti-creeping device (not shown) located in that side of the draw-head 1 opposite to its coupling hook. Now, as the inner end of lever 18 is lifted further its upper edge will gradually contact with the whole under surface of bar 11, and upon a still further lift, to raise the pin 2 to the coupling hook opening position, will contact with the right hand rib 12 alone, thereby tilting bar 11 in the opposite direction, and causing a contact between both of the pintles 17 and the upper edges of both slots 23 and 24 in pin 2, whereby said locking pin 2 will be tilted to the right at its lower end and will thus tend to follow the coupling hook tail in its opening movement. By inclining the under side of the plate 6, as shown in Fig. 7, to conform to the incline of the pintles 14 I provide what may be termed a universal bearing for said pintles under this slight

tilting in either direction hereinbefore described.

By providing the elongated slot 10 in the plate 6 in which the rear end 13 and pintles 14 of the lifting bar 11 move, I provide for any longitudinal movement of the draw-head 1 within the limits permitted by the draft rigging, and also provide for the limited longitudinal movement of the lifting bar 11 under the pin lifting movement. Furthermore, the construction readily accommodates itself to the free lateral movement of the draw-head and draw-bar in rounding curves.

By reason of the slotted connection between the lifting bar 11 and locking pin 2, said lifting bar will be raised from its lowermost position only when lifted by lever 18, and, when released thereby, will at once assume its lowermost position, even though the locking pin 2 be raised to the lock-set position. Thus there will be at no time any permanent lifting of pin lifting mechanism, nor will said mechanism be affected by any movement of the locking pin 2, as when the latter is lifted by the coupling hook tail in either its opening or its closing movement its vertical movement will not affect said lifting bar 11. Furthermore, when used on flat cars the load may project over and rest on said lifting bar, and the locking pin 2 can still be operated from beneath the draw-head.

It will also be observed that in the preferred construction both the connection between the lifting bar 11 and the plate 6, and the connection between said bar and the locking pin 2 are detachable connections of integral parts, whereby the use of separate connecting devices, such as pins, is dispensed with.

The function of the upper forward curve of slots 23 and 24 in the locking pin 2 is to cause the pintles 17 of lifting bar 11 to contact with said locking pin, while lifting the same, forward of the center of gravity of the latter, so that the lower end of said locking pin will be tilted forward, in order, when released, to engage the lock-set seat in the draw-head 1, which in my type of couplings is located in the front of the draw-head. The function of the lower rearward curve 26 in said slots 23 and 24 is to provide for a limited backward and forward movement to the locking pin 2 when raised to the lock-set position and being operated by the coupling hook tail in either its opening or closing movement.

A particular advantage gained by curving the upper and under sides of the plate 6 and similarly curving the lifting bar 11 is to reduce the friction between lifting bar 11 and plate 6 to a minimum. Thus, as seen in Fig. 4, the pintles 14 of bar 11 lie against an up curve of the under side of plate 6,

and its slight forward movement under a lift of said bar and the locking pin 2 is thereby facilitated and any binding tendency prevented. Further, when said bar 11 is released and drops to its initial position, said pintles are aided in their rearward movement by the curve of the under side of plate 6.

By means of the pivotal connection between the lifting bar 11 and plate 6, said bar will at all times lie in a substantially longitudinal line with the center of the draw-head under any lateral movement of the latter, so that said bar is always in a position to lift the locking pin 2 vertically.

The object in inclining the under side of plate 6 downwardly in front and rear of its longitudinal center is to cause the pintles 14 of lifting bar 10 to more readily resume their normal central position with respect to said plate, and without any binding, under the jerking backward and forward movement of the draw-head 1 when coupled in a moving train.

By providing the pintles 14 with flat under surfaces 15 any longitudinal movement of the lifting bar 11 in the pivot guide 5 will tend to scrape out any accumulation of dirt or ice on the car sill 3 beneath the plate 6, while the sharp front and rear edges of the ribs 12 of lifting bar 11 will perform the same function on top of said plate 6.

In Fig. 5 I have shown a somewhat modified construction, wherein the connection between lifting bar 11<sup>a</sup> and locking pin 2<sup>a</sup> is formed by ears 27 on said locking pin receiving therebetween the outer end of lifting bar 11<sup>a</sup>, the parts being pivotally connected by bolt 28. In this construction, however, said lifting bar must always move with the locking pin 2<sup>a</sup>.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a locking pin lifting mechanism for car couplings, the combination with a slotted locking pin, said slot lying normally within the draw-head, of a lifting bar directly and pivotally connected to said locking pin through said slot in such manner as to permit an operative vertical movement to said locking pin without movement of said lifting bar.

2. In a locking pin lifting mechanism for car couplings, the combination with a car sill, and a locking pin, of a raised slotted plate mounted on said car sill, and a lifting bar pivoted to said locking pin, and having laterally disposed pintles on the rear downturned end thereof adapted to be inserted into the slot in said plate and to be retained therein beneath said plate and in slidable relation thereto when said bar is connected to said locking pin and the latter is in operative position in the coupling draw-head.

3. In a locking pin lifting mechanism for car couplings, the combination with a car sill, and a locking pin, of a raised slotted plate mounted on said car sill, and a lifting bar pivoted to said locking pin, and having laterally disposed pintles on the rear downturned end thereof adapted to be inserted into the slot in said plate and to be retained therein beneath said plate and in slidable relation thereto when said bar is connected to said locking pin and the latter is in operative position in the coupling draw-head, said plate on its under side inclining downwardly and outwardly both longitudinally and transversely, and said pintles being tapered on their faces engaging said plate.

4. In a locking pin lifting mechanism for car couplings, the combination with a slotted locking pin, of a lifting bar having laterally disposed pintles on the forward downturned end thereof adapted to be removably inserted in the slotted locking pin and to be retained therein when said locking pin is in operative position in the coupling draw-head.

5. In a locking pin lifting mechanism for car couplings, the combination with a lifting bar having laterally disposed pintles on the forward downturned end thereof, of a locking pin having a rear slot therein and oppositely disposed side slots opening into said rear slot, said rear slot adapted, when said locking pin is turned to a horizontal position, to receive the pintles of said lifting bar, and said side slots adapted to receive and retain said pintles when said pin is turned to its normal vertical position.

6. In a locking pin lifting mechanism for car couplings, the combination with a locking pin having elongated oppositely disposed side slots therein, one of said slots being slightly higher than the other, of a lifting bar having oppositely disposed pintles engaged in said slots, and means for lifting said bar and initially tilting it in the direction of the shorter locking pin slot, whereby said pin will be lifted from that side and its lower end tilted in that direction, and for tilting said bar in the opposite direction upon the further lift thereof, whereby each of said pintles will then contact with the upper end of its slot and the lower end of said pin will be tilted in the opposite direction.

7. In a locking pin lifting mechanism for car couplings, the combination with a lifting pin pivoted to the car sill and the coupling locking pin, and having a flat under surface, of a pivoted lifting lever adapted to engage one edge of the under side of said bar in its initial lifting contact therewith to tilt said bar in one direction, and in its further lifting contact to engage the other side of said bar to tilt it in the other direction.

8. A locking pin lifting bar for car couplings, embodying a body portion, down-

wardly turned front and rear extremities thereto, and laterally disposed pintles on said extremities formed integral therewith.

9. A locking pin lifting bar for car couplings, embodying a body portion, side webs on said body portion, downwardly turned front and rear extremities to said body portion, and laterally disposed pintles on said extremities formed integral therewith.

10. In a locking pin lifting mechanism for car couplings, the combination with a car sill, a lifting bar slidably pivoted thereto and having oppositely disposed pintles at its front end, and means for operating said bar, of a locking pin having oppositely disposed vertical slots with which said pintles engage, said slots being curved forward at their upper ends to cause said pintles, when lifting said locking pin, to engage with said pin forward of its center of gravity so that said locking pin will be tilted forward at its lower end when being lifted.

11. A locking pin for car couplings, having a rear slot therein, and oppositely disposed side slots opening into said rear slot and adapted to receive and retain a locking pin lifting bar.

12. A locking pin for car couplings, having a rear slot therein, and oppositely disposed elongated side slots opening into said rear slot and adapted to receive and retain a locking pin lifting bar, and permitting a vertical movement of said pin independent of said bar.

13. In a locking pin lifting mechanism for car couplings, the combination of a draw-head provided with a coupling hook and a locking pin, a member supporting the draw-bar of said draw-head and having a plurality of slotted bearings, a lever provided with trunnions adapted to rest in said bearings, connections between said lever and the locking pin, and means for actuating said lever.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

PERCY B. HILLS,  
EDWIN F. FREY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

E. H. JANNEY.  
CAR COUPLING.  
APPLICATION FILED JUNE 30, 1910.

1,045,091.

Patented Nov. 19, 1912.

Fig. 1.

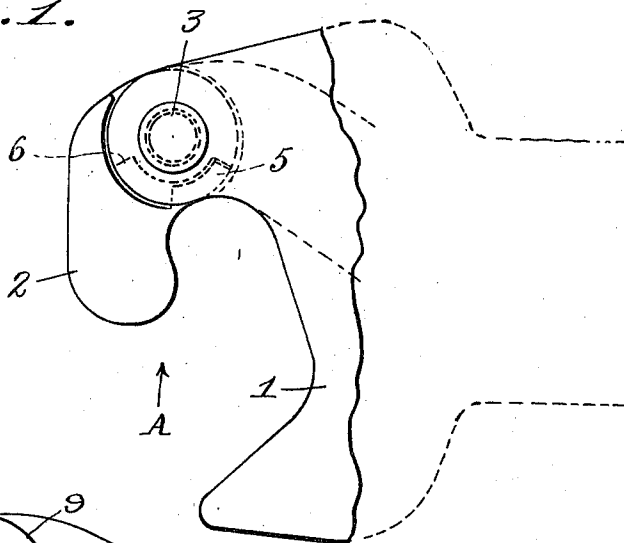


Fig. 3.

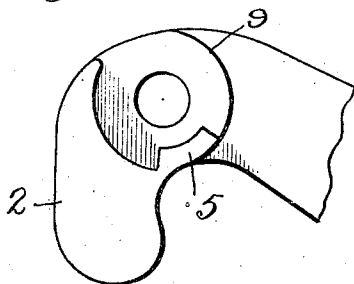


Fig. 4.

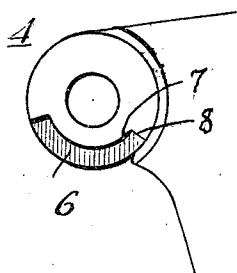
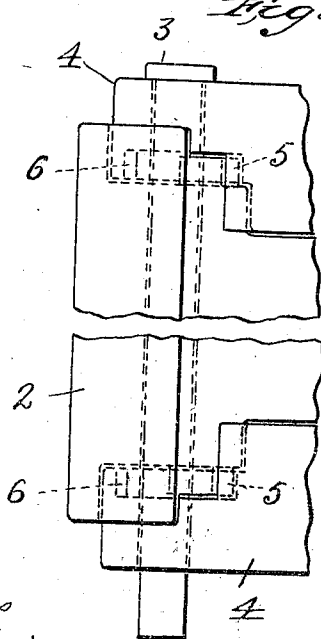


Fig. 2.



Witnesses  
B. S. Bridges  
E. W. Landon

By

Inventor

Eli H. Janney  
Percy B. Hills  
Attorney

# UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF ALEXANDRIA, VIRGINIA, ASSIGNOR TO NANNIE HAMILTON  
JANNEY, OF ALEXANDRIA, VIRGINIA.

## CAR-COUPLING.

1,045,091.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed June 30, 1910. Serial No. 569,743.

*To all whom it may concern:*

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car couplings, and has for its object to provide certain improvements in the construction of the draw-head and coupling hook, whereby the transverse strain and wear imposed upon the coupling hook pivot pin in certain forms of construction will be materially lessened.

In many of the couplings of the Janney or Master Car Builders' type now being made, the pivot of the coupling hook is located substantially on a line with the inside face of the locking jaw of the coupling hook when closed, and at a right angle to the longitudinal axis of the draw bar. This is a departure in location from the position of the coupling hook pivot as disclosed in Letters Patent granted to me February 25, 1879, No. 212,703, and consistently adhered to by me since the date of said Letters Patent, wherein the coupling hook pivot is located forward of the point shown in the accompanying drawing, as will be seen by a comparison of the same with my Letters Patent above referred to. In this first mentioned construction, under the strain on the coupling hook, practically the entire transverse strain and wear falls on the pivot pin 3, and it is primarily to lessen this strain that my improved construction is designed.

In the accompanying drawing:—Figure 1 is a top plan view of the front end of the draw-head and coupling hook embodying my improved construction. Fig. 2 is an elevation of the front end of the draw-head and coupling hook looking in the direction of the arrow A, Fig. 1. Fig. 3 is a detail top plan view of the front end of the coupling hook. Fig. 4 is a detail plan view of one of the draw-head lugs.

In the said drawing the reference numeral 1 denotes the draw-head, and 2 the usual coupling hook pivoted therein by means of the pivot pin 3, passing in the usual manner through the upper and lower lugs 4 of the draw-head. It will be observed that the location of the pivot pin 3 with respect to the coupling hook 2 and draw-head 1 is

on a line with the inside face of the locking jaw of the coupling hook taken at a right angle to the longitudinal axis of the draw-head. With the pin 3 so located the entire transverse strain is ordinarily imposed upon said pin, and the object of the present invention is to take up a part of this strain and to prevent wear on the coupling hook pin and the draw-head. This I accomplish by forming upon the upper and under sides of the coupling hook 2 projections 5, and by recessing the lugs 4 of the draw-head at 6 to receive said projections 5, as shown, said recesses being long enough to permit the movement therein of the projections 5 from the open to the closed position of the coupling hook and being so located as to lie to the rear transversely of the pivot pin 3 when the coupling hook is closed, as shown.

By means of this construction I provide that the projections 5, when the coupling hook is in the closed position and a transverse strain is exerted thereon, shall bear against the vertical walls of the recesses 6 at 7 and 8, it being understood that under such a strain the line of force on the pivot pin of the coupling hook is in the direction of the arrow A in Fig. 1. By this construction I materially relieve the transverse strain on the pin 3, as the said projections 5 by their contact with the walls of the recesses 6 at 7 will take up most of said strain. On the other hand, in the construction disclosed in my Letters Patent hereinbefore referred to the location of the pivot pin 3 is such that the shoulders on the upper and lower sides of the coupling hook face pass to the rear of the center of the pivot of said coupling hook, whereby the line of draft strain on said pivot 3 is through said shoulders, so that they aid said pivot in resisting the same by their contact with the lugs 4 of the draw-head, and thus render unnecessary the projections 5.

In my improved construction both the rib 5 and the depression 6 lie above both the hub and the buffing or rear bearing shoulder 9 of the coupling hook, thus relieving said rib and depression from all but the transverse strains on the coupling.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

In a car coupling, the combination with

a draw-head, a coupling hook, and a removable pivot pin therefor, the center of said pin being located substantially on a line with the inner coupling face of the coupling hook, of an arc-shaped rib on the coupling hook adapted to engage a similarly shaped depression in the draw-head, the two lying above both the hub and the buffing or rear bearing shoulder of the coupling hook, whereby they receive the transverse

strains to protect the coupling hook pin therefrom.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

LOUIS STORCK,

BEULAH A. ROBERTS.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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